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SIMPLIFYING IAS EXAM PREPARATION

- IAS SELF STUDY GUIDE -

SECURE SYNOPSIS

MAINS 2019

GS-III

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General Studies Paper - III

Topic: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment. Inclusive growth and issues arising from it.

Q) Priority Sector Lending in Agriculture is often seen to be negatively correlated to the climatic conditions of a region. Critically analyse the statement in the backdrop of a recent move of the Banks that decided not to extend loans to regions hit by drought in India. (250 words)

The hindu

Why this question:

Recently Bank of Maharashtra, a state-run lender, has decided not to extend loans in eight zones in Maharashtra and Madhya Pradesh which are hit by drought. Thus it becomes necessary for us to analyse the correlation of droughts and priority sector lending in agriculture.

Key demand of the question:

Analyse in detail the negative correlation of climatic conditions of a region with that of lending by Banks to the farmers.

Directive word:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

In a few introductory lines explain the context of the question.

Body:

In brief discuss –

- Explain Priority Sector Lending (Agriculture)? – Priority Sector includes the following categories: (i) Agriculture, (ii) Micro, Small and Medium Enterprises, (iii) Export Credit, (iv) Education, (v) Housing, (vi) Social Infrastructure, (vii) Renewable Energy and (viii) Others. The activities covered under Agriculture are classified under three sub-categories viz. Farm credit, Agriculture infrastructure and Ancillary activities.
- Why Banks are defying the lending to drought hit regions? – Bad loans from agricultural advances in the branches of such zones, present pathetic condition of agriculture owing to water distress etc.
- Explain why is there a negative correlation? What are its impact ?
- What should be the remedial action?

Conclusion:

Conclude with what needs to be done to address the situation.

Introduction:

- Priority Sector Lending (PSL) is an important role given by the Reserve Bank of India (RBI) to the banks for providing a specified portion of the bank lending to few specific sectors like agriculture and allied activities, micro and small enterprises, poor people for housing, students for education and other low income groups and weaker sections. This is essentially meant for an all round development of the economy as opposed to focusing only on the financial sector.
- Recently Bank of Maharashtra, a state-run lender, has decided not to extend loans in eight zones in Maharashtra and Madhya Pradesh which are hit by drought.

Body:

Priority sector lending norms:

- Currently, all domestic and foreign banks with at least 20 branches are required to lend a minimum of 40 per cent of their total loans (Adjusted Net Bank Credit (ANBC) or credit equivalent amount of off-balance sheet exposure (whichever is higher)) to the priority sector (agriculture, micro enterprises, education, social housing, etc).



- They are also required to meet sub-targets, such as 18 per cent for agriculture (8 per cent for small and marginal farmers), 7.5 per cent for micro enterprises and 10 per cent for weaker sections.
- Those with less than 20 branches will also need to fulfil the overall PSL norms of 40% of adjusted net bank credit (ANBC) in a phased manner by 2020

PSL norms are often seen negatively by banks because:

- It diverts funds from the productive sectors, imposes economic burdens on the banks in the form of loan losses and payment defaults and also imposes opportunity costs of lending to non-priority sectors of the economy.
- These negative effects are increased transaction costs, increased NPAs and the decreased deposit mobilization. Since the subsidized nature of loans under the directed credit forces the banks to pay lower interest rates on deposits, this makes the deposits a less attractive avenue for the people which ultimately impact the banks.
- **Agriculture and credit risk:**
 - Problem with priority sector loans is the lack of understanding of the sub-sectoral target groups, especially agriculture and the small and medium sector, as also weaker sections.
 - Further, given the vagaries of the monsoon that agriculture is susceptible to and the undiversified risk portfolios in such rural areas, the credit risks for such banks from such PSL would be extremely high.
 - The guidelines for agricultural credit and lending to weaker sections are extremely complex the commercial banks may not be the best equipped to handle beneficiary identification, credit risk assessment and loan disbursement to these sectors.
 - Same would be the case for PSL to the micro, small and medium enterprise (MSME) sector. The sector, with its unorganized operations and lack of proper accounting records and financial statements, poses higher costs and greater risks in credit disbursement.

PSL norms are needed because:

- Those who are directly affected comprises of mainly weaker sections of society like farmers and small scale industries.
- PSL was created to ensure support for sectors of the economy that do not receive adequate credit or support from financial institutions due to questions of profitability.
- It is also claimed that PSL results in social returns and improved lending portfolios of the banks.
- The directed lending promotes social equity and facilitates increase in employment and investment in less developed regions and the vulnerable sections of the society.
- Average PSL ratio overall is well above the target over the entire period, with some degree of variation. However, the average lending to agriculture and weaker sections is much below the RBI target. All banks have defaulted on their sub-sectoral targets, especially that of 18% for agriculture, in most years.
- Priority sector loans have contributed far less to the gross non-performing assets (NPAs) .priority sector lending may not be responsible for compromising banks' credit risk minimization strategies, or risk accumulation.
- Removal of existing loan limits of up to ₹5 crore to micro and small units and up to ₹10 crore to medium enterprises, will help banks make good the shortfall in MSME loans that qualify as priority sector lending.

Way forward:

- Banks should be allowed to choose the category they wish to lend to. Foreign banks may then choose to lend in the form of export credit rather than to agriculture.
- Creation of a development finance institution that would provide a mix of grants and loans to under-served sectors and geographies.
- The new institution can raise capital from commercial banks through existing innovative instruments like the PSL certificates, specify minimum sectoral disbursement targets and choose projects based on independent risk assessment and intended outcomes.
- This will support the policy objectives of increased credit and reduce systemic risk, making PSL work in the long run
- Similarly, private sector banks may choose to lend housing credit in urban areas, rather than being forced to lend agricultural finance.
- The government may rely on specialized institutions such as the National Bank for Agriculture and Rural Development (NABARD) to fulfil sectoral lending targets, while at the same time ensuring structural reforms in these sectors to make lending to them more viable.



Q) What do you understand by currency swap ? Discuss the pros and cons of currency swap and explain how it acts as a tool for quantitative easing of the Indian economy ? (250 words)

[Livemint](#)

Why this question:

The question is in the light of recent move of RBI of the currency swap. The article discusses in detail as to how the central bank is using swaps as an indirect tool to loosen monetary policy, and in what ways it could result in an inflationary spurt later.

Key demand of the question:

The answer must provide for a detailed narration of the concept of currency swap, pros and cons and how it functions as a tool of quantitative easing with reference to the recent step taken by Reserve bank of India.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer

Introduction:

Shortly narrate the context of the question.

Body:

Answers must discuss the following aspects :

- In brief define what you understand by currency swap – A currency swap between two countries is an agreement or contract to exchange currencies (of the two countries or any hard currency) with predetermined terms and conditions. Often the popular form of currency swap is between two central banks
- How does currency swap between countries work? – A currency swap is similar to an interest rate swap, except that in a currency swap, there is often an exchange of principal, while in an interest rate swap, the principal does not change hands. In currency swap, on the trade date, the counter parties exchange notional amounts in the two currencies.
- What is the advantage of currency swap? – help mitigate the risk of unwanted interest rate fluctuations. For example, It may be more expensive to borrow in the United States than it is in Japan, or vice versa. In either circumstance, the domestic company has a competitive advantage in taking out loans from its home country. Its cost of capital is lower.
- Context of India's currency swap – Under the current swap auction, RBI will buy US dollars from banks totaling to \$5 billion. Minimum bid size would be \$25 million and in multiples of \$1 million thereafter.
- Discuss and list down the benefits and issues associated, take cues from the article.

Conclusion –

Conclude with way forward and state how the RBI's latest move is in line with its easy monetary policy stance.

Introduction:

- A bilateral currency swap is an **open-ended credit line from one country to another at a fixed exchange rate**. The country which avails itself of this loan pays interest to the country which provides it, at a benchmark interest rate such as the Libor (London Inter-bank rate).
- India has such arrangements with many Asian nations, but the arrangement with Japan is among the largest of such deals, valued at \$75 billion. The government hopes that this deal will act as a buffer to shore up the rupee, which has depreciated by 14 per cent against the dollar recently.

Body:

Pros of Currency Swap:

- The currency swap makes it easier to improve liquidity conditions.
- Currency swap agreements help in saving for a rainy day when the economy is not looking in good shape.
- The swap agreements also contribute towards stabilising the country's balance of payments (BoP) position.
- The agreement aids in improving confidence in the Indian market.
- The agreement will aid in bringing greater stability to foreign exchange and capital markets in India



- This facility will enable the agreed amount of foreign capital being available to India for use as and when need arises.
- Currency swaps can be done in multiple ways. If the amount that is being exchanged is fully exchanged when the transaction is initiated, at the maturity date the exchange is being reversed. The idea behind this is that in the meantime, until the maturity date, the market may reverse, thus the brokerage house managed the risk.

Cons of Currency Swap:

- There is one main disadvantage to currency swaps, and this is related to their original purpose.
- At first, they were agreements to get around exchange controls, but then after these barriers were eliminated, they are being used mainly to hedge investments.
- The risk when using a currency swap is that at the time the maturity is being reached, the floating interest rate would represent a bigger cost than the whole purpose of the swap. To mitigate this downside, longer term periods are favoured.

Currency Swap as a tool for quantitative easing:

- **Quantitative Easing** consists of large-scale asset purchases by central banks, usually of long-maturity government debt but also of private assets, such as corporate debt or asset-backed securities. Typically, QE occurs in unconventional circumstances, when short-term nominal interest rates are very low, zero or even negative.
- In recent times, the rupee has been falling against the dollar because of its widening current account deficit (the difference between imports and exports of goods and services).
- This leads to importers upping their demand for dollars far beyond what exporters bring into the country.
- While the RBI had amassed foreign currency reserves of over \$426 billion by April 2018, it has had to use up some of this in recent weeks to prop up the rupee.
- Though present forex reserves at over \$390 billion are still comfortable, having a \$75-billion loan-on-demand from Japan gives the RBI an additional buffer to fall back on, should it need extra dollars.
- The rupee has depreciated the most among Asian currencies amid emerging market volatility triggered by rising US interest rates, pricier crude, geopolitical concerns and intensifying protectionism and trade wars.
- It has fallen over 13% since start of 2018, having recovered from 74.48 to the dollar earlier this month to close at 73.41.
- The arrangement will be used only when required, and will help meet short-term liquidity mismatches.
- India has taken several steps to contain its current account deficit, which could swell to an estimated 2.8% of GDP, and is seen as the root cause of rupee volatility.

Conclusion:

- All in all, currency swaps present more advantages than disadvantages and forex brokers are using them as a valuable risk management tool. Used together with other risk management tools like hedging, they help forex brokers navigate through difficult financial periods.

Q) Despite issues concerning convergence, the WTO needs to be sustained as an international platform to formulate trade rules and bring convergence on divergent matters. Comment. (250 words)

The hindu

Why this question:

India is to host the second mini-ministerial meet of the World Trade Organization (WTO), on May 13-14, 2019. The article is in the backdrop of interests of developing and least developed countries in global trade.

Key demand of the question:

One is expected to analyse in detail the issues of convergence at the WTO between the developed and the developing countries. And what needs to be done to overcome it.

Directive word:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

In a few introductory lines explain the background of the context of the question.

**Body:**

In brief discuss –

- Discuss the issues concerning WTO ? – investment facilitation, rules for e-commerce, gender equality and subsidy on fisheries etc.
- Explain why is there a deadlock between group of countries at the WTO?
- Discuss the need for negotiating these issues in a convergent manner.
- Take hints from the article and form a balanced opinion on the issue.

Conclusion:

Conclude that the WTO needs to be sustained as countries need an international platform to formulate trade rules and bring convergence on divergent matters.

Introduction:

- India will host the second mini-ministerial meet of the World Trade Organisation (WTO), on May 13-14, 2019. To discuss the interests of developing and least developed countries in global trade, this informal meet will also focus on the accusation by the U.S. that these economies benefit from exemptions meant for the poorer nations.

Body:**The issues concerning WTO:**

- **WTO is facing existential crisis** during a time when developed economies have adopted protectionist attitude.
- Inability of WTO to bring together the developed and developing countries to build consensus on Doha Agenda.
- Growing tension between developing countries who want to address “legacy issues” and inequalities, and developed countries move to new issues like e-commerce and investment facilitation
- **Agreement on Agriculture:**
 - The disagreements between developed countries (the European Union and the U.S.) and developing countries (Malaysia, Brazil and India) to discipline the farm regime in their favour continue, thereby threatening the WTO’s comprehensive development agenda.
 - At the 11th Ministerial Conference of WTO, the US blocked a permanent solution on government stockholding for food security purposes, India and developing countries toughened its stand on new issues including e-commerce and investment facilitation for digital trade.
- **Politicisation of the Appellate Body appointment and reappointment process:**
 - The quasi-attribution of permanent Appellate Body seats to the U.S. and the European Union (EU).
- **The “Overreaching” or judicial activism of United States:**
 - USA has systematically blocked the filling of vacancies for ‘judges’ to the seven-member AB, it has acutely affected the functioning of the body, even as disputes continue to pile up.
 - The US stand will **adversely affect the development interest of the developing world.**
 - At the **Buenos Aires**, the developed countries led by the US and the European Union formed **groups on e-commerce, investment facilitation and MSMEs** within the WTO with more than 70 members in each group.
- **Non-tariff Barriers:**
 - Developed countries design and implement stringent non-tariff measures (NTMs) which exacerbate the problems faced by poor countries that are willing to export. NTMs significantly add to the cost of trading.
 - However, the costs of acquiescence with many NTMs are asymmetrical across exporters because compliance depends on production facilities, technical know-how and infrastructure — factors that are usually inadequate in developing economies.
 - These countries are, therefore, unable to compete in international markets and hardly gain from sectors with comparative advantage such as agriculture, textiles and apparels.
- **Trade:**
 - There is a trade war between US and China despite both being a member of WTO. This negates the core non-discriminatory principle of WTO.
 - US and China have imposed counter-productive duties, accusing each other of harming their domestic interests. WTO has not been able to prevent the trade wars despite best efforts and has been labelled as a talk shop.



The need for negotiating these issues in a convergent manner:

- Multilateral agreements within the WTO framework have far-reaching implications on global trade unlike bilateral deals.
- The economies of the developing and less developed world (with little bargaining power) were unable to gain market access in most of the developed economies (which were influential in negotiations), especially when it came to agricultural commodities.
- Outside the WTO system, weaker countries will be disadvantaged.
- Regionalism cannot be an alternative. Regional trade groups have succeeded in some places and they have not elsewhere.
- India's own experience with bilateral trade agreements has not always been good.
- The world therefore benefits from a multilateral trade body –though a fairer one than the WTO of the 1990's.
- A weakened EU and Britain need a robust multilateral system

Way forward:

- WTO needs to reinvent itself, focusing on issues where consensus can be built.
- WTO needs to strengthen the dispute settlement mechanism as there are issues in appointment of judges in new appellate body.
- WTO needs to enhance discussion mechanism by introducing wider consultations. It has been a long-standing complaint by the smaller participants that the consultations or decision making is limited to the green room of DG of WTO.
- There is a need of free trade is required more by developing countries like India than developed countries.
- There is need for the structural reform in the WTO functioning as multilateral trading system. Despite WTO being a democratic organization, there is a need to make it more effective in protecting the interests of small nations against stronger countries.
- Transforming the global trading system WTO so that it could promote shared prosperity among all the countries.
- The much wanted need around the world is structural transformation which is a jobs-and-development-focused digital industrialisation strategy
- Development and inclusiveness must remain at the heart of WTO's work.

Conclusion:

- **The Delhi meeting** can be a breakthrough if members negotiate these issues in a convergent manner. The time is opportune for developing countries to voice their concerns and push for a stable and transparent environment for multilateral trade.
- India must do its homework to focus on the unresolved issues and address the newer ones which are of interest to developed nations, mainly investment facilitation.
- The WTO needs to be sustained as countries need an international platform to formulate trade rules and bring convergence on divergent matters.

Q) What do you understand by Banking correspondents? Highlight the advantages of Business/Banking correspondents with special reference to the role they can play in meeting the goal of financial inclusion. Also Discuss the issues being faced by them in the realization of financial inclusion. (250 words)

[Indianexpress](https://www.indianexpress.com)

Why this question:

The Article highlights that the Business correspondents (BCs) operating in the Direct Benefit Transfer (DBT) scheme and other banking services are finding it tough to operate due to reduction in fees and unaffordability of the Aadhar enabled payment system (AEPS).

Key demand of the question:

The answer must provide for a detailed narration of who is a Business correspondents (BCs) in the Banking system? role played by BC in ensuring financial inclusion of all sections of the society.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.



Structure of the answer

Introduction:

write a few introductory lines about the banking/Business correspondent.

Body:

Answers must discuss the following aspects :

- Who are they? Business correspondents are retail agents engaged by banks for providing services at locations other than a bank branch or an ATM.
- Permitted services include: identification of borrowers, collection and preliminary processing of loan applications, collection of small value deposit, disbursement of small value credit, sale of micro insurance, MF products and pension products.
- History: In 2006, RBI issued guidelines for engagement of BCs by banks for providing banking and financial services.
- Who can act as BCs? The RBI has provided a long list of entities and persons who can act as BCs.
 - Some of these are NGOs/ MFIs set up under Indian Societies/ Trust Acts (excluding non banking financial companies (NBFCs)), Societies registered under mutually aided co-op. societies (MACs) Act or the Coop. Acts of States, Section 25 companies, Post Offices, Individual kirana/ medical/fair price shop owners etc.
 - In June 2018, Union government announced that all 2.9 lakh common service centres (CSCs) in the country will operate as business correspondents of banks.

Conclusion –

Conclude with way forward.

Introduction:

- Banking Correspondents (BCs) are individuals/entities engaged by a bank in India (commercial banks, Regional Rural Banks (RRBs) and Local Area Banks (LABs)) for providing banking services in unbanked / under-banked geographical territories. A banking correspondent works as an agent of the bank and substitutes for the brick and mortar branch of the bank. He is an approved bank agent providing basic banking service using a micro ATM.

Body:

BCs and Financial Inclusion:

- identification of borrowers;
- collection and preliminary processing of loan applications including verification of primary information/data;
- creating awareness about savings and other products and education and advice on managing money and debt counselling;
- processing and submission of applications to banks;
- promoting, nurturing and monitoring of Self Help Groups/ Joint Liability Groups/Credit Groups/others;
- post-sanction monitoring;
- follow-up for recovery; disbursement of small value credit; recovery of principal / collection of interest
- collection of small value deposits
- sale of micro insurance/ mutual fund products/ pension products/ other third party products and
- Receipt and delivery of small value remittances/ other payment instruments.
- BCs lower the costs of serving the poor. They address many of the behavioural constraints believed to adversely affect savings.
- BCs, who reside in the vicinity of their clients and are often from the same community, can more easily address constraints specific to regions.
- Many of the poor who live in small villages at some distance from the larger villages and small towns in which bank branches are located can now access banking services with the help of BCs.

So far, more than 22 crore bank accounts have been opened under the scheme, utilizing a network of more than one lakh business correspondents (BCs). However, it is widely believed that many accounts were opened in response to political pressure on banks to achieve programme targets. Others may have been opened to avail of the insurance benefits that the accounts enabled or under the expectation that government transfers would require a savings account. As a consequence, duplicate accounts with zero balances represent a high percentage of the total accounts.



Issues faced by BCs:

- **Financial Viability:** The sustainability of the BC model is dependent on the volume of transactions. These volumes are extremely low and are also struggling to make a profit as the current commission structure is inadequate to cover agents' costs.
- **Cash Management and Liquidity:** The most prominent problems faced by the agents are related to cash management and liquidity issues. BCs typically transfer as much money to agents as the security deposit paid by them. However, there are typically large gaps between deposit and withdrawals due to location specific characteristics, such as rural areas being withdrawal heavy due to incoming remittances.
- **Operational Issues:** Agents have reported issues with the base branch claiming branch officials restrict agents to opening only 5 accounts per day and even simple requests to display account numbers on cards given to clients take months to be processed. Technical glitches faced by agents also hinder BC work, ranging from improper functioning of the bank server to other software glitches.
- **Agent inactivity and lack of knowledge about the product:** Clients complain that the agent in charge of collecting their deposits never visited them. In other areas accounts were opened but no agents were appointed for the clients. Poor services or lack of information about the account and its features as the primary reason for inactivity.
- **Standardization and Documentation:** There is a lack of systematic documentation of processes that all agents should follow irrespective of the BC and/or principal bank that they operate with

Way forward:

- There should also be greater clarity with regards to the **cost sharing for cash management** and associated risks between the banks and BCs.
- Banks should be encouraged to let their BCs offer a more diverse product mix to increase revenue. If possible, utility bill payment facilities and other value added linkages should also be introduced along with Non-frill Accounts.
- **A certain level of financial literacy** is necessary to make this model a success. The government, the RBI and principal banks should spearhead the implementation in order to make the BC model profitable.
- The RBI and principal banks should invest time and effort in **promoting** the BC model and its benefits. The RBI should also place a greater effort and emphasis on building acceptance of the BC model amongst its prospective account holders.
- **Standardization** would build a uniformity of roles and responsibilities among agents.

Conclusion:

- Apex institutions such as the RBI and principal banks need to set guidelines to promote risk-sharing between BCs and banks, which is the basis of most of the current issues brought up in this post. The RBI must acknowledge that this model is sustainable, but only in the long run with mass penetration and high transaction volumes.

Q) What are NBFCs ? How are they different from banks ? Discuss their financial activities and the issues currently being faced by the Indian NBFCs. (250 words)

[Livemint](#)

Why this question:

The article highlights the ripple effect of the NBFCs crisis on the Indian economy. Non-banking financial companies (NBFCs) are facing a crisis, particularly the smaller ones that are struggling with asset-liability mismatch amid corporate governance issues. Thus, it is important for us to ponder on the topic from exam point of view.

Key demand of the question:

The answer must provide for a detailed discussion on what are NBFCs, their role and activities in the economy, what are the issues currently they are facing and what needs to be done to resolve it.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.



Structure of the answer

Introduction:

write a few introductory lines defining what are NBFCs – is a Company that offers financial assistance and other banking services without actually being a bank. It is a Company registered under the Companies Act, 1956.

Body:

Answers must discuss the following aspects:

- What are the characteristics of NBFC? How are they different from Banks?
- Business they undertake? – Loans and advances, Acquisition of shares/stocks/bonds/debentures/securities, Leasing, Hire-purchase, Insurance business, and Chit business.
- Further, Companies whose primary business constitutes receiving deposits either in instalments or lump sum in any manner are also deemed as NBFCs. However, NBFCs exclude institutions engaged in the following kinds of business: Agriculture activity, Industrial activity, Purchase or sale of any goods (other than securities) or Providing any services and sale/purchase/construction of immovable property.
- Discuss How are NBFCs different from banks?
- Then move on to discussing the problems of the NBFCs – asset-liability mismatch amid corporate governance issues, NBFCs had borrowed short term from banks and mutual funds while lending to developers of long-term projects, which got held up because of various factors, willful corporate defaulters etc.
- Suggest solutions – take cues from the article.

Conclusion –

Conclude with way forward.

Introduction:

- A **Non-Banking Financial Company (NBFC)** is a company registered under the **Companies Act, 1956** engaged in the business of loans and advances, acquisition of shares/ stocks/ bonds/ debentures/ securities issued by Government or local authority or other marketable securities of a like nature, leasing, hire-purchase, insurance business, chit business.
- However, it does not include any institution whose principal business is that of agriculture activity, industrial activity, purchase or sale of any goods (other than securities) or providing any services and sale/purchase/construction of immovable property.

Body:

Comparison between NBFC and Banks:

NBFCs lend and make investments, and hence their activities are similar to that of banks; however, there are a few differences as given below:

- NBFC cannot accept demand deposits;
- NBFCs do not form part of the payment and settlement system and cannot issue cheques drawn on itself.
- Deposit insurance facility of Deposit Insurance and Credit Guarantee Corporation is not available to depositors of NBFCs, unlike in case of banks.
- Unlike Banks which are regulated by the RBI, the NBFCs are regulated by multiple regulators; Insurance Companies- IRDA, Merchant Banks- SEBI, Micro Finance Institutions- State Government, RBI and NABARD.
- The norm of Public Sector Lending does not apply to NBFCs.
- The Cash Reserve Requirement also does not apply to NBFCs.

Role of NBFC in Indian economy:

- **Profitability :**
 - NBFCs are more profitable than the banking sector because of lower costs. This helps them offer cheaper loans to customers. As a result, NBFCs' credit growth is higher than that of the banking sector with more customers opting for NBFCs.



- **Infrastructure Lending :**
 - NBFCs contribute largely to the economy by lending to infrastructure projects, which are very important to a developing country like India. Since they require large amount of funds, and earn profits only over a longer time-frame, these are riskier projects and deters banks from lending
- **Promoting inclusive growth :**
 - NBFCs cater to a wide variety of customers both in urban and rural areas. They finance projects of small-scale companies, which is important for the growth in rural areas. They also provide small-ticket loans for affordable housing projects. All these help promote inclusive growth in the country.
- **Variety of sectors:**
 - NBFCs are beginning to meet the consequent unmet demand for credit across a variety of sectors and ensuring continuing credit flows to the real economy.
- NBFCs have been maintaining low net NPA ratios of 3.5% unlike their banking sector counterparts.
- NBFCs have been found to be relatively more resilient to stress applied for credit risk as observed by the RBI in its financial stability reports of the past two years. NBFCs, even under severe stress conditions, continued to remain stable.
- NBFCs have been able to complement the credit intermediation by banks by serving regions, sectors and customer segments that banks have either been unable or unwilling to serve profitably.
- NBFCs often take lead role in providing innovative financial services to Micro, Small, and Medium Enterprises (MSMEs) most suitable to their business requirements.
- NBFCs do play a critical role in participating in the development of an economy by providing a fillip to transportation, employment generation, wealth creation, bank credit in rural segments and to support financially weaker sections of the society.
- Emergency services like financial assistance and guidance is also provided to the customers in the matters pertaining to insurance.

NBFC's aid economic development in the following ways

- Mobilization of Resources – It converts savings into investments
- Capital Formation – Aids to increase capital stock of a company
- Provision of Long-term Credit and specialised Credit
- Aid in Employment Generation
- Help in development of Financial Markets
- Helps in Attracting Foreign Grants
- Helps in Breaking Vicious Circle of Poverty by serving as government's instrument

Issues faced by NBFCs:

- NBFC is passing through a turbulent period following a series of defaults by Infrastructure Leasing and Financial Services (IL&FS) and the subsequent liquidity crunch.
- Several corporates, mutual funds and insurance companies had invested in short-term instruments such as commercial papers (CPs) and non-convertible debentures (NCDs) of the IL&FS group that has been defaulting on payments since August.
- This has stoked fears that many of them could have funds stuck in IL&FS debt instruments which, in turn could lead to a liquidity crunch in their own backyard.
- There are rising fears that the funding cost for NBFCs will zoom and result in a sharp decline in their margins.
- Higher borrowing costs and narrowing options to raise funds will pose challenges for retail non banking finance companies (NBFCs) in the fiscal year ending March 2019 .
- The bond yields have gone up sharply to around the 8% mark. That is making borrowing costlier even at the short end of the yield curve.
- NBFCs are likely to witness higher pricing pressure as competition in the retail segment intensifies going forward this is expected to be accentuated by narrowing funding avenues and higher systemic rates.
- Higher fuel prices, weaker dollar and the trade war could hit the SME sector badly. This would mean defaults by SMES, which have been a traditional market for NBFC lending.
- Investors are worried about a credit downgrade backlash on NBFCs. That could mean huge write-offs for investors.
- Mutual funds who have invested in market instruments of NBFCs have faced increased redemption pressures.

**Way forward:**

- Given the growing size and dominance of the NBFC sector, it is important that the threshold capital levels for entry be substantially increased. It may be prudent for RBI to evaluate the need to shore up minimum capital requirements for various NBFCs.
- While RBI has identified systemically important NBFCs, it needs to step up the monitoring of NBFCs which belong to large, diversified groups. Checks and balances are needed to ensure that risks do not build up in the sector due to structures which are too-complex-to-manage.
- RBI could consider re-visiting some of the unimplemented recommendations of the Working Group on Issues and Concerns in the NBFC Sector chaired by Usha Thorat in 2011.
- One such recommendation was the introduction of a liquidity coverage ratio for NBFCs. The objective was to ensure that NBFCs have cash balances and holdings of government securities which may fully cover gaps between cumulative outflows and cumulative inflows for the first 30 days. This would be the buffer in times of stress.

Q) What are key functions and Principles of Budgeting in India? How far has India evolved in refining its budgetary processes? Elucidate. (250 words)

Indian Polity by Lakshmikanth

Why this question:

The question is straightforward and aims to analyse the evolution of budgetary process in India and functions and key principles of budgeting in India.

Key demand of the question:

Analyse in detail the key functions and Principles of Budgeting in India and its evolution.

Directive word:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In a few introductory lines comment on the significance and uniqueness of the Budgetary process in India.

Body:

In brief discuss –

- Discuss the historical evolution of budgetary process in India since the British times.
- Discuss the key functions of a government budget – Public Policy Document, Instrument of Economic Development, public policy document, Instrument of Budgetary Control, Instrument of Accountability etc.
- What are the important principles like – principle of annularity, rule of lapse, fiscal discipline, inclusiveness, accuracy etc.
- Reassert the significance in development and growth of the country

Conclusion:

Conclude with reassertion of importance of such processes.

Introduction:

- A budget is a statement containing a forecast of revenues and expenditures for a period of time, usually a year. It is a comprehensive plan of action designed to achieve the policy objectives set by the government for the coming year. Under **Article 112** of the Indian Constitution, a statement of estimated receipts and expenditure of the government of India has to be laid before parliament in respect of every financial year which runs from 1st April to 31st March.

Body:

Key functions of Budgeting in India:

- **Forecasting:** this entails making a calculated attempt into knowing what the future holds. Forecasting may not be perfect as evidence has shown but it is better to have a forecast to work with than not having any as this will help you get prepared.
- **Planning:** planning depends on forecast that has been made in the past to make decision about the future. The estimated data generated by forecasting are used to make plans. Government agencies, for example



health authorities use forecast from estimated population to plan on the number of health centers to open in a community and the number of beds and other health equipment that will be put in that hospital.

- **Management:** Budgeting is an executive or managerial function. As an effective tool of management, budgeting involves planning, coordination, control, evaluation, reporting and review. Many of the budgetary innovations such as: functional classification, performance measurement through norms and standards, accounting classification to correspond to functional classification, costing and performance audit and use of quantitative techniques.
- **Control:** Control essentially implies a hierarchy of responsibility, embracing the entire range of executive agencies, for the money collected and expenditure, within the framework of overall accountability to the legislature. In a democracy, control assumes new dimensions and gives rise to exceedingly difficult problems.
- **Public Policy Document:** The budget serves as a public policy document expressed in money and is an embodiment of implied policy objective in monetary terms.
- **Redistribution of Wealth:** The most important function of budget is redistribution of wealth. However, that needs proper integration of revenue and expenditure side.
- **Instrument of accountability:** Budget is an instrument to make elected legislators accountable to people. It also upholds the economic, social and cultural rights of the people.

Principles of Budgeting in India:

- **Principle of Annuality:** This implies that a budget is prepared every year on annual basis. Annuality in budget formation is a widespread phenomena. In some countries of OECD, yearly budgets are now framed within a multi-year framework.
- **Rule of Lapse:** Principle of Annuality also implies that the money left unspent in a year must also lapse to the public treasury and government should not be able to spend it unless it is re-sanctioned in next year's budget. This is called Rule of Lapse and is useful as an effective tool of financial control.
- **Fiscal Discipline:** Budget should be balanced and should be able to display congruence between the income and expenditure. This is known as Fiscal Discipline and it adheres to the Keynesian School of Thought. Fiscal discipline helps to eliminate fiscal deficits and offset fiscal surplus.
- **Inclusiveness:** Budget should be comprehensive and inclusive of diverse budget estimates. An inclusive budget includes all government revenue and expenditures and helps evaluating the much required trade-offs between different policy options.
- **Accuracy:** Budget figures are essentially predictions of the amount of money to be generated in the forthcoming year and its expenditure.
- **Transparency and Accountability:** Budget transparency and accountability are two of the eight basic indicators of good governance as propounded by United Nations.

Evolution of Budgeting:

- Broadly, the evolution of budgeting has passed through three stages.
- Firstly, the budgeting system was a sub-system of the British administration. The financial objectives were subordinate to the limited objectives of the colonial power. Control of expenditure and accountability were the hallmarks of this period.
- Secondly, with the attainment of Independence, the developmental priorities of the nation superseded the limited objectives of the British Raj.
- In the third phase, a planning- orientation has been sought to be imparted to the budgetary exercises.
- These three phases correspond to the systems known as **incremental budgeting, performance budgeting and zero base budgeting respectively.**

Conclusion:

- The budget is an expression of the government's public policy. It informs the public as to how the government plans to earn and sell. But, most importantly, the budget reflects the government's balance sheet. In a large democracy like India, budgets take on a life of their own as it has a widespread impact on numerous areas. Hence, it is imperative to have knowledge about what it stands for and its importance.



Q) Why cannot an outgoing government present a full budget? Discuss the issues involved and need for clear guidelines on this also elaborate on the utility of an Interim budget in such a scenario. (250 words)

Indian Polity by Lakshmikanth

Why this question:

The question is to evaluate the method of Interim budget – its need, functionality and procedure. Also, one has to discuss the utility of Interim budget.

Key demand of the question:

Analyse in detail the features of an Interim budget, how is it different from a full budget? what are the nuances of it.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In a few introductory lines explain that Conventionally, a government at the end of its term goes in for a vote on account rather than a full Budget. Therefore, the debate on the issue. While few favor the full budget, others oppose it on the ground that this is an election year and the government has already presented 5 full budgets.

Body:

In brief discuss –

- Discuss the procedure of budget – role of Article 266, 114 of the constitution.
- What is vote on account? Why is it presented?
- Interim budget? – An Interim Budget is not the same as a 'Vote on Account'. While a 'Vote on Account' deals only with the expenditure side of the government's budget, an Interim Budget is a complete set of accounts, including both expenditure and receipts. An Interim Budget gives the complete financial statement, very similar to a full Budget.
- Compare and contrast the full budget with that of an interim budget.
- Discuss measures/ solutions required in direction to resolve and overcome the present controversies.

Conclusion:

Conclude with what needs to be done, suggest way forward.

Introduction:

- Traditionally, in an election year, the outgoing government presents **an interim budget or so-called vote on account**. The interim budget, or Vote on Account, is only for three/four months before the new government presents a full-fledged budget in July.
- The outgoing government cannot present an economic survey, bring a finance Bill or introduce new services during in the interim budget and doing so will be unconstitutional. Although, several governments, including the Congress-led United Progressive Alliance in 2009, haven't shied away from making policy pronouncements in interim budgets.

Body:

Issues involved in Budget during election year:

- The budget involves altering both taxes and outlays on schemes, this could influence the voters in an election year and goes against the principle of free and fair elections.
- **Constitutionally, the government can make tax changes in the interim budget.** However, the 12 interim budgets since Independence have respected the fact that the government is a custodian for a few months and have refrained from announcing big-ticket changes or new schemes
- With the general elections due, the ruling government would look at making available cheap loans and free accidental insurance to small businesses.
- While an incoming government has the freedom to change the estimates in the interim budget when it presents the final budget after taking office, outgoing governments in India have generally followed the convention of avoiding major policy announcements or taxation proposals in the interim budget.
- Going by recent history, however, interim budgets have been passed thrice since 2000.



- There is also the matter of the Presidential address to the Budget Session whereby the government makes its vision statement.
- If the budget proposes populist schemes, it will become difficult for the new government if it is led by another political party to withdraw these.

Utility of Interim Budget:

- The budget for the year approved by Parliament gives the government spending rights only till the end of the financial year ending March 31.
- If for any reason the government is not able to present a full budget before the financial year ends, it will need parliamentary authority for incurring expenditure in the new fiscal year until a full Budget is presented.
- Through the interim Budget, Parliament passes a vote-on-account that allows the government to meet the expenses of the administration until the new Parliament considers and passes the Budget for the whole year.
- In an election situation, the vote-on-account is usually for a four-month period.
- In an interim Budget, the vote-on-account seeks parliament's nod for incurring expenditure for part of a fiscal year.
- However, the estimates are presented for the entire year, as is the case with the regular Budget.
- However, the incoming government has full freedom to change the estimates completely when the final Budget is presented.

Conclusion:

- Thus, there needs to be proper codes laid down in the constitution regarding the kind of budget and the extent to which the government of the day use its power in the interim budget.

Q) Explain the concepts of budgetary deficit and fiscal deficit. (250 words)

Indian economy by Dutta and Sundaram

Why this question:

The question is from the static portions of GS – III paper and is intended to evaluate the concepts of budgetary deficit and fiscal deficit.

Key demand of the question:

Analyse in detail the concepts of budgetary deficit and fiscal deficit.

Directive word:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Provide for a brief introduction of the two concepts or highlight their significance.

Body:

In brief discuss –

- Definition of the two – budgetary deficit and fiscal deficit.
- What is difference between fiscal deficit and budget deficit? – Budgetary deficit is the difference between all receipts and expenses in both revenue and capital account of the government.
- A fiscal deficit occurs when a government's total expenditures exceed the revenue that it generates, excluding money from borrowings. Deficit differs from debt, which is an accumulation of yearly deficits.
- Discuss the significance of the two in the economy.

Conclusion:

Conclude by reasserting their significance.

Introduction:

- **Budgetary deficit** is the difference between all receipts and expenses in both revenue and capital account of the government and indicate the financial health of a country. A **fiscal deficit** occurs when a government's total expenditures exceed the revenue that it generates, excluding money from borrowings.

Body:

Budgetary deficit:

- The government generally uses the term budget deficit when referring to spending rather than businesses or individuals. Accrued deficits form national debt.



- A budget deficit happens when current expenses exceed the amount of income received through standard operations.
- Certain unanticipated events and policies may cause budget deficits.
- Countries can counter budget deficits by raising taxes and cutting spending.

Danger of Budget Deficits

- One of the primary dangers of a budget deficit is inflation, which is the continuous increase of price levels.
- Ultimately, a recession will occur, which represents a decline in economic activity that lasts for at least six months.
- Continued budget deficits can lead to inflationary monetary policies, year after year.

Strategies to Reduce Budget Deficits

- Countries can counter budget deficits by promoting economic growth through fiscal policies, such as reducing government spending and increasing taxes.
- For example, one strategy is to reduce regulations and lower corporate taxes to improve business confidence and increase Treasury inflows from taxes.
- A nation can print additional currency to cover payments on debts issuing securities, such as Treasury bills and bonds. While this provides a mechanism to make payments, it does carry the risk of devaluing the nation's currency, which can lead to hyperinflation.

Fiscal Deficit:

- The difference between total revenue and total expenditure of the government is termed as fiscal deficit.
- It is an indication of the total borrowings needed by the government.
- Generally fiscal deficit takes place either due to revenue deficit or a major hike in capital expenditure.
- Capital expenditure is incurred to create long-term assets such as factories, buildings and other development.

Challenges posed by Fiscal Deficit:

- It can mean that the Government is spending money on unproductive programmes which do not increase economic productivity. (For example MNREGA, most of the money is eaten midway by the Sarpanch and Local officers.)
- As government borrows from RBI which meets this demand by printing of more currency notes (called deficit financing), it results in circulation of more money. This may cause **inflationary pressure in the economy**.
- When Government keeps borrowing and borrowing to fill up the fiscal deficit pothole, then bond yield will increase. It is not good because more and more of taxpayers' money (i.e. Government 's incoming money) will go in repaying that bond interest rate rather than going into education or healthcare.
- Government may be compelled to borrow to finance even interest payment leading to emergence of a **vicious circle and debt trap**.
- Fiscal deficit "Crowds out" investment from private sector as Government borrows most of the cash.
- Borrowing is in fact financial burden on future generation to pay loan and interest amount which retards growth of economy.

Strategies to Reduce Fiscal Deficit:

- A deficit is usually financed through borrowing from either the central bank of the country or raising money from capital markets by issuing different instruments like treasury bills and bonds.
- A drastic reduction in expenditure on major subsidies. Reduction in expenditure on bonus, LTC, leaves encashment, etc. Austerity steps to curtail non-plan expenditure.
- Tax base should be broadened and concessions and reduction in taxes should be curtailed. Tax evasion should be effectively checked. More emphasis on direct taxes to increase revenue. Restructuring and sale of shares in public sector units.
- Famous economist John Maynard Keynes opined that deficits actually assist nations in climbing out of economic recessions.
- However, fiscal conservatives believe that deficits should be avoided by the government which should be inclined towards a balanced budget policy.

Conclusion:

- Thus, both the measures gives an indication of the health of the economy. It helps to guide the macro-economic policies of the Government for better usage of the public finances.



Q) Discuss in detail the crisis being faced by NBFCs in India? Suggest what measures need to be taken to resolve the same? (250 words)

[Indianexpress](#)

Why this question:

The article highlights the ripple effect of the NBFCs crisis on the Indian economy. Non-banking financial companies (NBFCs) are facing a crisis, it brings out the urgency with which RBI needs to urgently address the liquidity issues plaguing the NBFC sector.

Demand of the question:

The answer must explain what are NBFCs, their role and activities in the economy, what are the issues currently they are facing and what needs to be done to resolve it.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

The answer to the question is direct, one must explain in detail the issues being faced by NBFCs and what measures are needed to tackle the same.

The article captures both the dimensions, the students must take hints and structure the answer in detail.

Conclusion:

Conclude with what should be the way ahead.

Introduction:

- A **Non-Banking Financial Company (NBFC)** is a company registered under the **Companies Act, 1956** engaged in the business of loans and advances, acquisition of shares/ stocks/ bonds/ debentures/ securities issued by Government or local authority or other marketable securities of a like nature, leasing, hire-purchase, insurance business, chit business.
- However, it does not include any institution whose principal business is that of agriculture activity, industrial activity, purchase or sale of any goods (other than securities) or providing any services and sale/purchase/construction of immovable property.

Body:

How the NBFC crisis has panned out

Aug 2018: IL&FS crisis becomes public. With a debt of ₹91,000 crore, it defaults several times in Sep.

Sep: Crisis leads to sell-off in shares of several NBFCs. This leads to redemption pressure on many MF schemes.

Jan 2019: Essel Group's debt troubles become public. MFs and NBFCs enter into a "standstill agreement" with the promoter family to not sell the pledged shares of Zee Entertainment Enterprises.

Feb: Reliance group and its lenders and MFs enters into an Essel-like pact.

Apr: CARE Ratings downgrades debt programme of Reliance Capital and two of its arms, Reliance Commercial Finance and Reliance Home Finance.

May: Icra downgrades ratings on long-term bonds of Yes Bank with a negative outlook.

NBFC crisis:

- NBFC is passing through a turbulent period following a **series of defaults by Infrastructure Leasing and Financial Services (IL&FS)** and the **subsequent liquidity crunch**.
- Several corporates, mutual funds and insurance companies had invested in short-term instruments such as commercial papers (CPs) and non-convertible debentures (NCDs) of the IL&FS group that has been defaulting on payments since August.



- This has stoked fears that many of them could have funds stuck in IL&FS debt instruments which, in turn could lead to a liquidity crunch in their own backyard.
- There are rising fears that the funding cost for NBFCs will zoom and result in a sharp decline in their margins.
- Higher borrowing costs and narrowing options to raise funds will pose challenges for retail non banking finance companies (NBFCs) in the fiscal year ending March 2019.
- The bond yields have gone up sharply to around the 8% mark. That is making borrowing costlier even at the short end of the yield curve.
- NBFCs are likely to witness higher pricing pressure as competition in the retail segment intensifies going forward this is expected to be accentuated by narrowing funding avenues and higher systemic rates.
- Higher fuel prices, weaker dollar and the trade war could hit the SME sector badly. This would mean defaults by SMES, which have been a traditional market for NBFC lending.
- Investors are worried about a credit downgrade backlash on NBFCs. That could mean huge write-offs for investors.
- Mutual funds who have invested in market instruments of NBFCs have faced increased redemption pressures.
- A kind of contagion then spread to other financial stocks, and the benchmark indices crashed, creating wider impacts.
- Following the credit crunch after IL&FS crisis, RBI provided special incentives to banks to enable the flow of funds to NBFCs.

Way forward:

- Given the growing size and dominance of the NBFC sector, it is important that the threshold capital levels for entry be substantially increased. It may be prudent for RBI to evaluate the need to shore up minimum capital requirements for various NBFCs.
- While RBI has identified systemically important NBFCs, it needs to step up the monitoring of NBFCs which belong to large, diversified groups. Checks and balances are needed to ensure that risks do not build up in the sector due to structures which are too-complex-to-manage.
- RBI could consider re-visiting some of the unimplemented recommendations of the Working Group on Issues and Concerns in the NBFC Sector chaired by Usha Thorat in 2011.
- One such recommendation was the introduction of a liquidity coverage ratio for NBFCs. The objective was to ensure that NBFCs have cash balances and holdings of government securities which may fully cover gaps between cumulative outflows and cumulative inflows for the first 30 days. This would be the buffer in times of stress.

Q) What do you understand by Green New Deal (GND)? Evaluate its prospects for India's ailing economy. (250 words)

[livemint](https://www.insightsias.com/livemint)

Why this question:

The question is around the concept of Green new deal and the prospects it has for Indian economy.

Key demand of the question:

The answer must discuss what is the concept of GND, its prospects and way forward.

Directive word:

Evaluate – When you are asked to evaluate, you have to pass a sound judgement about the truth of the given statement in the question or the topic based on evidences. You have to appraise the worth of the statement in question. There is scope for forming a personal opinion here.

Structure of the answer

Introduction:

write a few introductory lines on the importance of such concept.

Body:

Answer should have the following dimensions covered:

- Discuss the concept of Green New Deal – It is a big, bold transformation of the economy to tackle the twin crises of inequality and climate change. It would mobilize vast public resources to help us transition from an economy built on exploitation and fossil fuels to one driven by dignified work and clean energy.
- Explain What is the Green New Deal proposal?
- Discuss how The Green New Deal could work in India too, allowing for a qualitative difference to the economy.



- Take hints from the article and discuss at depth.

Conclusion –

Conclude with significance and what should be the way forward.

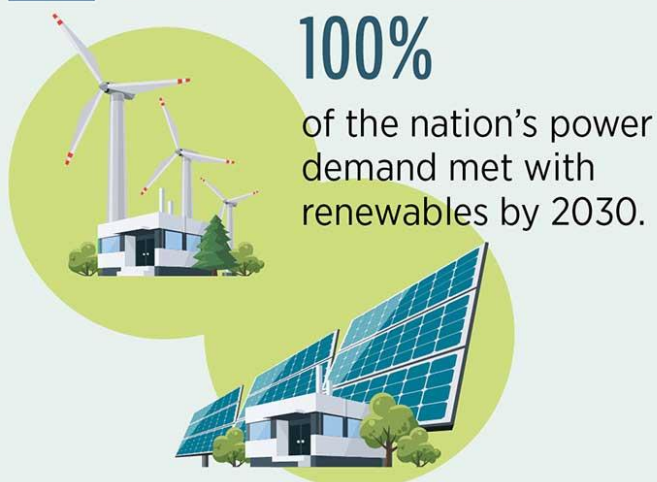
Introduction:

- Green New Deal (GND) is a set of **proposed economic stimulus programs in the United States that aim to address climate change and economic inequality**. The GND “is a **four-part programme for moving America quickly out of crisis into a secure, sustainable future**”.
- The name refers to the **New Deal, a set of social and economic reforms and public works projects** undertaken by President Franklin D. Roosevelt in response to the Great Depression. It combines **Roosevelt’s economic approach** with modern ideas such as **renewable energy and resource efficiency**.

What Is the Green New Deal?

A **45 percent** cut in carbon emissions by 2030 could keep global warming to **2.7°F**. Here’s how to save the planet and create jobs:

1 What works for the environment...



2 ...can also work for the economy.



THE Nation.

Sources: Data for Progress; IPCC
2018 Infographic: Tracy Matsue Loeffelholz

Body:

It includes **seven goals** previously introduced by Ocasio-Cortez:

- Shift 100 percent of national power generation to renewable sources.
- Build a national energy-efficient “smart” grid.
- Upgrade all buildings to become energy efficient.
- De-carbonize manufacturing and agricultural industries.
- De-carbonize, repair, and upgrade the nation’s infrastructure, especially transportation.
- Fund massive investment in the drawdown and capture of greenhouse gases.
- Adopting these goals would make “green” technology, industry, expertise, products, and services a major U.S. export.

GND and India:

- There are two main reasons why GND might find ready acceptance in India.
- One, it meets India’s push to reduce the country’s carbon footprint and stack up large capacities in renewable energy generation.
- Two, public sector’s importance in the GND blueprint aligns with ruling party’s social-democrat tilt in economic policy.



GND's prospects for India's ailing economy:

- GND might work in India too, with some modifications to fit in with Indian conditions.

The three main targets of GND stand out: **decarbonization** (accelerated electrification of vehicles is one way), **jobs creation** (which converts GND mainly into an economic transformation policy and less of an environment policy) and **protection for those hit hardest by the transition**.

- **Economic Impact:**
 - Businesses can create a profitable competitive advantage by adopting Green New Deal goals.
 - States have already set goals to become carbon-free.
 - The Green New Deal funds new jobs, including installing solar panels, retrofitting coastal infrastructure, and manufacturing electric vehicles. It asks for new trade rules to stop “the transfer of jobs and pollution overseas.”
 - It recognises that public funds would be needed for these changes and need to be leveraged.
- **Infrastructure:**
 - The resolution requires that any new infrastructure spending must address climate change.
 - It wants the government to push for more zero-emissions vehicles and invest in high-speed rail and other public transit.

Way forward:

- GND has found tremendous support among the youth in the US which has been participating in mass political action to not only push for legislation but to also shake up an inert political class in denial about global warming and climate change.
- A pan-US youth movement called the **Sunrise Movement** is trying to forge a consensus in the Democratic Party to support GND.
- Student politics in India motivates multiple voices to either immediately ask why students should get involved in politics, or provide unwarranted advice on how students should focus only on studies (actually exams) and not get distracted by politics.
- However, most college students are eligible to vote. Therefore, asking them to make a judgement call on politics at the municipal, state and national level but to block their political instincts once they enter the campus is asking for a compartmentalized personality.
- The political expression of issues that affect them, like global warming or climate change must be expressed.
- India needs its Sunrise moment.

Q) The problem with the Indian economy is not “jobless” growth. It is the inadequacy and instability of incomes for millions. Critically Analyse. (250 words)

[Livemint](#)

Why this question:

The article discusses in detail the prevailing conditions of poverty amidst election promises made by prime Minister Modi stating there will be only two castes now: those who are poor and those who want to free them from poverty.

Key demands of the question:

The answer must analyse why there is poverty in our country and in what way it is not about the jobless growth in the country but about the instability in the incomes of the people.

Directive:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction

In a few introductory lines explain the conditions of poverty in the country.

Body

The body of the answer has to capture the following aspects:

- Discuss what you understand by jobless growth.
- How is it related to poverty in India?
- What makes Indian economy prone to jobless growth? what are the implications?



- How is it not about joblessness but about income instability?
- Take hints from the article to elaborate and conclude with significance.

Conclusion

Conclude with way forward.

Introduction:

- A significant percentage of India's poor are, in fact, employed even though they might not have regular jobs. With unemployment turning out to be a big challenge for the government currently, and rural areas in distress due to agriculture's all-time-low economic returns, India has started debating employment seriously.

Body:

- **Jobless growth:** In a jobless growth economy, unemployment remains stubbornly high even as the economy grows. This tends to happen when a relatively large number of people have lost their jobs, and the ensuing recovery is insufficient to absorb the unemployed, under-employed, and those first entering the workforce.

Jobless growth and poverty:

- Problem is, our discussions usually centre around two solutions: **create jobs through government spending on infrastructure and take up skill development that would offer some employability to the youth.** Add to it the disproportionate focus on economic growth leading to job creation. These strategies are age-old, and are not in sync with job market characteristics. We have a high youth unemployment rate, and those who are employed are not able to lead a decent life.
- 39 per cent of young workers in emerging and developing countries live in moderate and or extreme poverty. This means surviving on less than US \$3.10/day. Worse, in emerging and developing countries, 16.7 per cent of young workers live on income below the extreme poverty threshold of US \$1.90/day. (**Global Employment Trends for Youth 2018 by the International Labour Organization (ILO)**).
- In developing countries, **95 per cent of employed youth are in informal sectors.** In another discouraging trend, the ILO report says that youths are three times as likely as adults to be unemployed. "Globally, the ratio of youth to adult unemployment rates has changed very little in recent years, serving to illustrate the particularly disadvantaged situation of young people in the labour market."
- According to the **Fifth Annual Employment-Unemployment Survey, 2015-16**, with an increase in education levels across India, the unemployment rate has also risen in the age group of 18-29 years.
- India's employment is found primarily in informal sectors; a substantial percentage of it comes from daily wages in development projects and agriculture.
- Their earnings are uncertain, and with very little wealth to fall back on, they easily slip back into poverty. This is the plight of small farmers, small entrepreneurs and workers in the informal sector of India.

Measures needed:

- The most important is provision of **universal social security.** In a dynamic, market-based economy, in which enterprises will wax and wane and jobs will be insecure, citizens must have adequate social security to provide for various emergent requirements, especially breaks in income, health emergencies, and old-age pensions.
- The **political economy must be reformed** with stronger associations at the bottom, such as **collectives of small producers and unions of workers.**
- Collectives can provide resources that individual enterprises cannot afford, and associations and unions can give more bargaining power to people at the bottom to improve the terms of trade in their favour—the prices they get, and the wages they are paid.
- **Laws applying to small enterprises must be simplified** and their implementation made easier. The burden of complicated and badly administered regulations is highest for small enterprises.
- **Labour laws and regulations are necessary, and their content improved and implementation eased.** They must be reformed for faster and more inclusive growth.
- **Small enterprises provide more employment than large ones and will continue to provide most jobs and incomes in the economy.**
- Access to finance, access to markets, access to technology, fair prices, and reduction of harassment from authorities are their principal problems. They must be tackled.

Conclusion:

- Informal employment shouldn't be equated with non-job status. Rather, the strategy should be to maximise decent job creation in these sectors.
- When we talk about skill development, we usually don't consider the skills being employed in informal sectors by workers as legitimate skills. Instead, we tend to force them into a new set of skills that they have to start with afresh.



- This might lengthen the process of job creation and employment. To sum up, we need to think anew about the way we create jobs.

Q) “With the New government India needs a New Bombay Plan”. Elucidate. (250 words)

[Livemint](#)

Why this question:

The article is in the backdrop of the new government that has come into place and places the need for new Bombay plan for the Indian economy.

Key demand of the question:

The answer must discuss the relevance of Bombay plan for the present economy and the nuances of the same.

Directive word:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Begin with brief write up on what was Bombay plan

Body:

Discussion should include the following aspects –

- Explain what was Bombay plan? How is it relevant even today?
- Discuss its potential to change the direction of economic development in the country and how it also happens to be one that is worth emulating today.
- Explain why it is necessary for the new government to have a vision in this direction?

Conclusion:

Conclude with significance of such plans in bringing an overhaul in the economy of the country.

Introduction:

- The Bombay Plan is the name commonly given to a World War II-era set of proposals the development of the post-independence economy of India. The plan, published in 1944/1945 by eight leading Indian industrialists. It proposed state intervention in the economic development of the nation after independence. A key principle of the Bombay Plan was that the economy could not grow without government intervention and regulation.

Body:

Objectives of Bombay Plan:

- The prime objectives of the plan were to achieve a balanced economy and to raise the standard of living of the masses of the population rapidly by doubling the present per capita income within a period of 15 years from the time the plan goes into operation.
- Under the assumption that the fledgling Indian industries would not be able to compete in a free-market economy, the Plan proposed that the future government protect indigenous industries against foreign competition in local markets.
- This plan envisages that the economy could not grow without government intervention and regulation. In other words, the future government protects indigenous industries against foreign competition in local markets.
- Although the Bombay Plan did not itself propose a socialist agenda, “virtually all” commentators acknowledge “that there is a direct line of continuity from the Bombay Plan of 1944-1945 to the First Five-Year Plan in 1950.”

Significance of Bombay Plan for new India:

- Its uniqueness, far-sightedness and focus on the social sector.
- It had even promoted ‘State Capitalism’ (the genesis of the mixed economy) although the concept might have been put there to prepare India for free-market capitalism.
- It was a national plan for long-term economic and social development sought by the leadership of indigenous business in their own interest as well as in the national interest.
- The original Plan underlines the necessity of economic unity. It only happened in 2017 when India introduced a nationwide Goods and Services Tax.



- It had come up with a cascade of priorities where the State's intervention is required – education, public health, agricultural growth, progressive taxation and the need to tackle black money and wealth hoarded abroad.
- The document clearly states that public sector industries should be sold to private investors at some point – disinvestment, in today's parlance.

Conclusion:

- Given the state of India's economy today, with High NPA's, twin-balance sheet problem and reduced investment by the private sector. There is an increased need for Government spending to spur the economy.

Q) "Though cryptocurrency often has been viewed as a disrupter to the traditional notions of currency, it might outlast national currencies as a concept." Critically analyse. (250 words)

[livemint](https://www.livemint.com)

Why this question:

The article provides for a detailed analysis of how cryptocurrencies though have been doubted for long by various countries, it is gaining significance as a currency that can challenge the traditional ones.

Demand of the question:

Answer must discuss in detail the nuances of cryptocurrency. One must trace its evolution from being doubted to the one now that has been gaining significance for known and unknown factors.

Directive word:

Critically analyse – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction

Start with definition of cryptocurrency.

Body

Discuss the following points in detail:

- What are cryptocurrencies? How are they used?
- Explain how though widely seen as a disruption for the traditional banking and financial institutions, cryptocurrencies have gained significant traction over the last half a decade, at the same time creating a regulatory nightmare for banking regulators across the globe. At present, there are around 969 cryptocurrencies in existence across the globe, with a total market capitalization close to 116 Billion USD.
- Quote reasons for their popularity.
- What are the associated pros and cons?
- What needs to be done?

Conclusion

Conclude with significance and way forward.

Introduction:

- A cryptocurrency is a digital or virtual currency that uses cryptography for security. Cryptocurrencies use decentralized technology to let users make secure payments and store money without the need to use their name or go through a bank. They run on a distributed public ledger called blockchain, which is a record of all transactions updated and held by currency holders. The most common cryptocurrencies are Bitcoin, Ethereum, Ripple, and Litecoin.
- **Facebook** has announced a digital currency called **Libra** that will roll out for use in 2020 and allow the platform's billions of users across the globe to make financial transactions online.

Body:

Current state of Cryptocurrencies:

- Experts and central banks across the world are slowly arriving at the conclusion — written about in various research papers but not yet implemented in policy — that cryptocurrencies are here to stay.
- The world's premier cryptocurrency is within sniffing distance of \$9,000 apiece, and investors still seem bullish on it.



- The current value—at \$8,918 on 29 May—is below its peak of \$19,600-plus in late 2017, which was achieved after an exponential rise all through that year.
- That ascent took online traders by storm and stoked fears of a tulip mania-like “bubble” just before it crashed dramatically; by the end of 2018, it had slid to about one-fifth of its peak value.
- Bitcoin’s market capitalization is now over \$150 billion, reportedly.
- India banned crypto-currencies in 2018, shortly after a Chinese clampdown.

Cryptocurrency is a disrupter to traditional notions of currency:

- The government is wary that regulation will provide legitimacy to “what is currently ambiguous,” and may lead to further rise in its valuation and end up contributing “to the investment bubble”.
- A currency that is not based on any real economic activity, unlike a sovereign currency whose value is based on the relative value of a tradeable basket of goods and services, cannot prima facie inspire much comfort.
- Bitcoin’s value, astronomical even now at about \$8,300 but much below January 2018’s stratospheric levels, is based on demand for a fixed supply of Bitcoins in the future it cannot exceed 21 million in number, of which 18 million has already been mined.
- The security offered by encryption of cryptocurrency may be breached by hackers who are always lurking for any point of weakness. This may end up costing investors huge amounts of money because prices are attached to the currencies.
- Cryptocurrency exists only in essence such that there are no physical coins and notes. As a result, there is, therefore, no central place where the currency can be deposited for safe keeping.
- Lack of regulation of cryptocurrency means it is not under any control or supervision. This attracts more investors thereby increasing their chances of investing in this technology.
- Cryptos are feared not just for their sheer speculative propensities, but also for their capacity to undermine sovereign currencies (the latter is an exaggerated apprehension).
- Virtual currency is being traded anonymously over the Internet and used for a host of anti-national and illegal activities, from terror funding to illicit trade of arms and drugs and so on.
- The online use of this currency, was without any border restrictions or geographical constraints, resulting in danger to the integrity and sovereignty of the nation.
- However, it does not make sense to go overboard and criminalise merely adventurous crypto speculators. There are no official or other data available that point towards misuse of cryptocurrencies for illegal ends

However, there are a few advantages of cryptocurrencies:

- One of the reasons why cryptocurrencies have gained global appeal is because of their secure nature. Cryptocurrencies are encoded into a database.
- Cryptocurrency trading draws its legitimacy from the unanimity of the participants in its network. It has gained global approval by most leaders as a legal medium of payment.
- No transaction fees are usually charged for transactions involving cryptocurrency.
- Cryptocurrency does away with the need for a regulator.
- By making everything public, cryptocurrency negates the need for a middleman.
- According to bitcoin.org, no individual or organisation can manipulate Bitcoins because it is cryptographically secure and do not contain customers’ personal information.

Measures needed:

- Governments the world over have banned cryptocurrencies as a medium of exchange, and India is no exception.
- Yet in India, an estimated 30 lakh Bitcoins are reportedly in circulation. From a value of a little over ₹60,000 at the start of 2017, the Bitcoin now commands a value of nearly ₹6 lakh, with a global market cap of \$10.2 trillion. Cryptos are recognised in the US as an asset class.
- Firms like Paypal, Uber, Visa and Mastercard have all signed up as part of the consortium to control it. Each has invested \$10 million.
- Criminalising possession of cryptocurrencies will impact such investments.
- Bankers and investors now consider the cryptocurrency market at par with derivatives. The NYSE plans Bitcoin futures through a platform called **Bakkt**.

Conclusion:

- Underlying the crypto movement is a libertarian belief: Cryptos are an alternative asset to fiat currencies; controlled by none, they cannot be manipulated by governments with vested interests. Legalising the cryptomarket can help beneficiaries emerge from the shadows and make productive investments in an



economy witnessing a digital transformation. Crypto conduct calls for regulation, but not outright criminalisation.

Q) What do you understand by sandbox which is often mentioned in the context of financial technologies companies ? Discuss its importance to Indian economy. (250 words)

The hindu

Why this question:

Recently the Securities and Exchange Board of India (SEBI) has released a discussion paper on a framework for a 'regulatory sandbox' for fintech testing.

Key demand of the question:

One must explain in detail what is the concept of sandbox, what are its utilities, how is it useful in effective regulations of Fintech companies.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

One can start by bringing out the highlights of the discussion paper brought out by SEBI.

Body:

In brief discuss –

- Highlights of the paper.
- Definition: A live, testing environment where new products, processes, services and business models could be deployed on a limited set of eligible customers for a specified period of time, with certain relaxations in the regulations and guidelines.
- Objective: The sandbox is intended to serve as a testing ground for new business models and technologies that benefit the investors, Indian markets and the Indian economy at large.
- To begin with, all market participants that are registered with the SEBI will be eligible to test within the sandbox. At a later stage, SEBI may allow sandbox access to fintech start-ups and other fintech firms as well.
- To be eligible to be tested in the sandbox, a solution need to show that it directly benefits the investors and poses no risks to the financial markets among other parameters.

Conclusion:

based on your discussion, conclude with significance of such a concept.

Introduction:

- In the computer science world, a sandbox is a **closed testing environment designed for experimenting safely with web or software projects**. The Securities and Exchange Board of India (SEBI) has released a discussion paper on a framework for a 'regulatory sandbox,' wherein companies dealing with financial technologies can test new technologies and products in a live market environment.

Body:

Regulatory Sandbox:

- regulatory sandbox can be defined as a live, testing environment where new products, processes, services and business models could be deployed on a limited set of eligible customers for a specified period of time, with certain relaxations in the regulations and guidelines.
- The concept of regulatory sandbox is used in a similar manner in the digital economy arena: testing grounds for new business models that are not protected by current regulation, or supervised by regulatory institutions.
- The indicative list of products, services and technologies where this concept could be applicable includes retail payments, money transfer services, marketplace lending, mobile technology applications, data analytics and application program interface (API) services

Importance of Regulatory Sandbox for India:

- The sandbox is intended to serve as a testing ground for new business models and technologies that benefit the investors, Indian markets and the Indian economy at large.
- To begin with, all market participants that are registered with the SEBI will be eligible to test within the sandbox.



- At a later stage, SEBI may allow sandbox access to fintech start-ups and other fintech firms as well.
- These testing grounds are especially relevant in the fintech world, where there is a growing need to develop regulatory frameworks for emerging business models.
- The purpose of the sandbox is to adapt compliance with strict financial regulations to the growth and pace of the most innovative companies, in a way that doesn't smother the fintech sector with rules, but also doesn't diminish consumer protection.
- It allows the regulator, the innovators, the financial service providers (as potential deployers of the technology) and the customers (as final users) to conduct field tests to collect evidence on the benefits and risks of new financial innovations, while carefully monitoring and containing their risks.
- Meanwhile, to be eligible to be tested in the sandbox, a solution need to show that it directly benefits the investors and poses no risks to the financial markets among other parameters.

Conclusion:

- A regulatory sandbox would benefit fintech firms by way of reduced time to launch innovative products at a lower cost. This will further improve the financial inclusion in India.

Q) Discuss the need for a robust and transparent securitisation framework in Indian financial systems also discuss measures to develop the market further. (250 words)

Reference

Why this question:

The Reserve Bank of India (RBI) constituted a committee to review the existing state of mortgage securitization in India and suggest measures to deepen it.

Key demands of the question:

The answer must analyse the need for robust and transparent securitization framework in Indian financial systems. Discuss the present issues, causes etc.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction

In a few introductory lines define need for securitization framework.

Body

The body of the answer has to capture the following aspects:

- Discuss the Committee on the Development of Housing Finance Securitization Market.
- Explain the details why the committee had to come in place, need for restructuring etc.
- Discuss that The mortgage securitization market in India is primarily dominated by direct assignments among a limited set of market participants on account of various structural factors impacting both the demand and the supply side, as well as certain prudential, legal, tax and accounting issues.
- For a vibrant securitisation market to develop, it is imperative that the market moves to a broader issuance model with suitable structuring of the instruments for diverse investor classes.
- At the same time, as the international experience shows, it is critical to address the issues of misaligned incentives and agency problems resulting from information asymmetry problems between the originators and investors in the market, which can exacerbate systemic risk.
- Thus, a careful design of a robust and transparent securitization framework assumes paramount significance.

Conclusion

Conclude with significance of the same.

Introduction:

- **Securitization** is the process of taking an illiquid asset, or group of assets, and through financial engineering, transforming it (or them) into a security.
- It is a risk management tool used to reduce idiosyncratic risk associated with the default of individual assets. Banks and other financial institutions use securitization to lower their exposure to risk and reduce the size of



their overall balance sheet. RBI recently set up committee for development of housing finance securitisation market.

Body:

- The move is aimed at bringing in standardisation of asset securitisation practices to enable better management of credit and liquidity risks.

Terms of reference:

- To review the existing state of mortgage backed securitisation in India and suggest measures to deepen it.
- To assess the role of various counterparties, including servicers, trustees, rating agencies, in the securitisation process and suggest steps to address the key risks.
- The committee will also study the best international practices, and lessons learnt from the global financial crisis.
- It will propose measures to further develop these markets in India by identifying critical steps required, such as definition of conforming mortgages, mortgage documentation standards, digital registry for ease of due diligence and verification by investors, and avenues for trading in securitised assets.

Need of committee:

- The mortgage securitisation market in India is primarily dominated by direct assignments among a limited set of market participants on account of various structural factors impacting the demand and the supply side, as well as certain prudential, legal, tax and accounting issues.
- The move comes at a time when housing finance companies and NBFCs have been facing higher borrowing costs and slowdown in funding after a liquidity squeeze in the market.
- The RBI noted that globally, residential and commercial mortgages are supported by well-lubricated securitisation markets, under which mortgage originators package portfolios of mortgages and resell them in capital markets as mortgage-backed securities or covered bonds.
- Thus, a careful design of a robust and transparent securitisation framework assumes paramount significance.

Measures needed:

- For a vibrant securitisation market to develop, it is imperative that the market moves to a broader issuance model with suitable structuring of the instruments for diverse investor classes.
- It is critical to address the issues of misaligned incentives and agency problems resulting from information asymmetry problems between the originators and investors in the market, which can exacerbate systemic risk.

Conclusion:

- A well-functioning securitisation markets can enable better management of credit and liquidity risks on the balance sheets of banks as well as non-bank mortgage originators and, in turn, help lower the costs of mortgage finance in the economy. The move is a positive impetus for the sector and will help on the liquidity front.

Q) What do you understand by Outcome budget ? How is it different from performance budget ? Explain. (250 words)

Indian polity by Lakshmikanth

Why this question:

The question is to evaluate – outcome budget, performance budget.

Key demand of the question:

The answer must provide for a detailed discussion on the two type of the budget namely – outcome budget and performance budget, provide for a comparison and contrast the two.

Directive word:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer

Introduction:

write a few introductory lines about the significance of a Budget.

Body:

Answers must discuss the following aspects :

- **What is an Outcome Budget?** – It is a progress card on what various Ministries and Departments have done with the outlays in the previous annual budget. It measures the development



outcomes of all government programs and whether the money has been spent for the purpose it was sanctioned including the outcome of the fund usage.

- It is a means to develop a linkage between the money spent by a government and the results which follow.
- An interesting feature of outcome based budgeting is that the outcomes of programmes are measured not just in terms of Rupees but also in terms of physical units like Kilowatt of energy produced or tonnes of steel produced. Also outcomes are expressed in terms of qualitative targets and achievements to make the technique more comprehensive.
- Then move on to discuss the procedure for outcome-based budgeting.
- **Then explain what is a performance budget?** – A performance budget is a budget that reflects the input of resources and the output of services for each unit of the government. This type of budget is commonly used by government bodies to show the link between taxpayer funds and the outcome of services provided by federal, state, or local governments.
- Provide for merits and demerits of the two.

Conclusion –

Conclude by reasserting their significance.

Introduction:

- Outcome based budgeting is a **practice of suggesting and listing of estimated outcomes of each programmes or schemes designed.**
- Outcomes are the end products and results of various Government initiatives and interventions, including those involving partnership with the State Governments, Public Sector Undertakings, autonomous bodies and the community. Outcome Budget was first introduced in India by the UPA in 2005-06 by stating that “the people of the country are concerned with outcomes, not outlays”.

Body:

Advantages of Outcome Budget:

- Public administration in India has been plagued by a lack of focus on results and outcomes that matter most to citizens.
- Annual planning and monitoring revolves largely around the allocation of the government’s budget to its departments and programmes and periodically checking if the money is being spent and activities completed.
- But such an approach, however, completely misses the difference between doing the job, and doing it well.
- An outcome-based approach shifts the perspective to the short and long-term outcomes of governance.
- For example rather than asking did they build enough toilets or did they open schools and hospitals, the questions will be like whether the toilets built are clean and functional and did open defecation reduce.
- An outcome budget seeks to enshrine this approach within governments by linking budgetary outlays to specific outputs (tangible services or infrastructure provided) and outcomes (short or long-term benefits to the people).
- It arms citizens with data to hold governments accountable, and in turn empowers the governments to better orient the bureaucracy towards results.
- The Centre has since 2005-06 continued to release annual Outcome Budget reports with incremental changes and without any reference to the previous year’s performance.

Disadvantages:

- It is resource intensive. It takes a lot more time and effort to closely review and justify every budget element rather than modify an existing budget and review only new elements.
- Difficulty in matching expenditure with results & performance
- Focusing on process and input utilization, resulted in wasteful expenditure
- Lack of trained staff and those trained are transferred to unrelated jobs

Performance budget:

- **A performance budget** is a budget that reflects the input of resources and the output of services for each unit of an organization. This type of budget is commonly used by government bodies to show the link between taxpayer funds and the outcome of services provided by federal, state, or local governments.

Advantages:

- An increase in accountability of the local authorities to the taxpayers, communication to the public about priorities, and quantifying particular goals.
- Taxpayers want to know where and how their money is being spent and to what end.



- Performance-based budgeting helps in bringing the transparency in the budget preparation. The performance budget helps in taking better financial decisions for the allocation of resources.

Disadvantages:

- A potential for disagreement on where spending priorities should lie, in the case of a government with multiple agencies
- Lack of unified cost standards across multiple agencies
- The potential for a department to manipulate data in order to reach a target, which could lead to a need to spend funds on an independent party to verify results
- A lack of flexibility once the inputs/outputs have been set

Conclusion:

- In India, most of the Central Government Ministries are following outcome budgeting. Delhi Government has presented two outcome budgets till now. The document acts as a progress report of government projects and aims to ensure 'greater transparency' in governance.

TOPIC: Effects of liberalization on the economy, changes in industrial policy and their effects on industrial growth.

Q) Write a note on 4th Industrial Revolution. Discuss in detail the possible impact of it on Indian economy. (250 words)

Reference

[Economictimes](https://economictimes.india.com/news/economy/growth/4th-industrial-revolution-what-it-is-how-it-will-affect-india/articleshow/70111117.cms)

Why this question:

The article provides for a detailed analysis on the coming of 4th Industrial Revolution.

Key demand of the question:

Analyse in detail what is 4th Industrial Revolution and what are its impact on Indian economy.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In a few introductory lines explain what you understand by 4th Industrial Revolution.

Body:

In brief discuss –

- What is 4th Industrial Revolution (4th IR)? – characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres.
- There are three reasons why today's transformations represent not merely a prolongation of the Third Industrial Revolution but rather the arrival of a Fourth and distinct one: velocity, scope, and systems impact.
- Discuss its Impact on Indian economy – both negative and positive.
- Positive Impacts:
 - Demographic dividend and Employment generation, Strong Banking sector, Global Leader in Industrial revolution, Investments and exports, Agriculture and Health etc.
- Negative Impacts: Loss of jobs, Competitiveness, Dumping, Loss to MSMEs, Economic inequality, Environmental Externalities etc.

Conclusion:

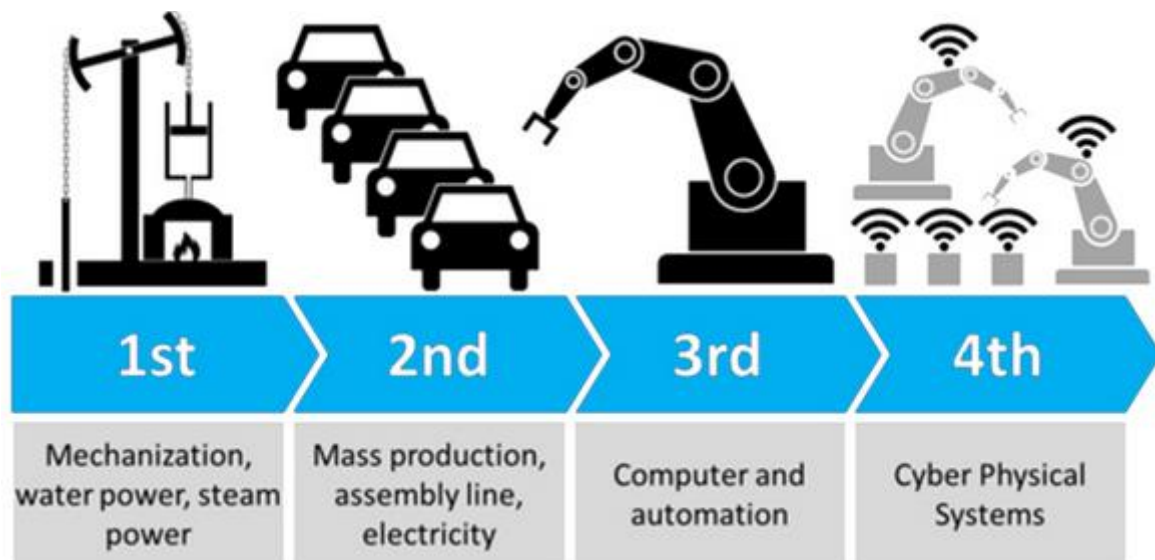
Conclude with what needs to be done, suggest way forward.

Introduction:

- The **Fourth Industrial Revolution (IR 4.0)** is a term that describes present technological age. It is the fourth industrial era since the inception of the initial Industrial Revolution of the 18th century.
- The key elements of the fourth revolution are the fusion of technologies ranging from the physical, digital to biological spheres. Prime Minister gave an institutional shape to the expression by launching the **Centre for Fourth Industrial Revolution in India**.



Body:



As described by the founder and executive chairman of World Economic Forum, Klaus Schwab, “the fourth industrial revolution is a technological revolution that will fundamentally alter the way we live, work and relate to one another”.

Characteristics of IR 4.0:

- It is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres.
- It brings together digital technology and the physical world to create a new range of products and services.
- The possibilities of billions of people connected by mobile devices, with unprecedented processing power, storage capacity, and access to knowledge, are unlimited.
- And these possibilities will be multiplied by emerging technology breakthroughs in fields such as artificial intelligence, robotics, the Internet of Things, autonomous vehicles, 3-D printing, nanotechnology, biotechnology, materials science, energy storage, and quantum computing.
- The revolution is evolving at an exponential rather than a linear pace and it is disrupting almost every industry in every country.

Possible Impact of IR4.0 on Indian Economy:

- For India, the Fourth Industrial Revolution brings tremendous opportunities to leapfrog many stages of development, hastening its journey towards becoming a developed economy.
- It can play a major role in alleviating poverty.
- Better and low-cost health care can be achieved through the implementation of AI-driven diagnostics, personalized treatment, early identification of potential pandemics, and imaging diagnostics, among others.
- Enhancing farmer’s income by providing them with the latest technologies, improvement in crop yield through real-time advisory, advanced detection of pest attacks, and prediction of crop prices to inform sowing practices.
- It will strengthen infrastructure and improve connectivity to the very last village.
- Artificial intelligence can be used to empower and enable specially-abled people.
- It will improve ease of living and ease of doing business using smart technologies.
- Recently, India has announced her drone policy, which will play an important role in security, traffic and mapping.
- Increased automation means more efficient products and processes, faster growth
- It gives a boost for small scale industries as production gets automatic and cheap
- India provides a potentially huge market access.
- There is the very appealing demographic dividend with Indian youth representing approximately 20% of the global workforce by 2020. With more than 50 per cent of its population is under the age of 27, India can play a pivotal role in shaping the global fourth Industrial revolution in a responsible, scalable and inclusive manner.
- There is a rising middle class
- India is expected to become the fifth largest consumer market in two decades. Within this context, any form of consumption, entrepreneurship, startup or industry, can be viewed as a scaling opportunity.
- India also has a robust start-up scene, which reportedly has more firms than anywhere else in the world except for the US and the United Kingdom (UK).



- With one of the youngest labour forces in the world, a sizeable technical aptitude, the second largest number of internet users on mobile devices and the second largest English speaking population, India is well positioned to enhance its global leadership in a post fourth industrial revolution era.

Challenges posed by IR 4.0:

- Stiff competition from other countries, high unemployment levels and high incidences of poverty etc.
- Revolution is likely to increase inequality in India as the spread of machines increases markets and disrupts labour markets.
- Inequality represents the greatest societal concern associated with the Fourth Industrial Revolution.
- The largest beneficiaries of innovation tend to be the providers of intellectual and physical capital the innovators, shareholders, and investors which explains the rising gap in wealth between those dependent on capital versus labour.
- As automation substitutes for labour across the entire economy, the net displacement of workers by machines might exacerbate the gap between returns to capital and returns to labour.
- With this revolution, it is also possible that in the future, talent, more than capital, will represent the critical factor of production. This will give rise to a job market increasingly segregated into low-skill/low-pay and high-skill/high-pay segments, which in turn will lead to an increase in social tensions.
- The Fourth Industrial Revolution will change not only what we do but also who we are. It will affect our identity and all the issues associated with it: our sense of privacy, our notions of ownership, our consumption patterns, the time we devote to work and leisure, and how we develop our careers, cultivate our skills, meet people, and nurture relationships.

Way forward:

- Governments, businesses and civil society organisations should put together an ecosystem for massive upskilling of the workforce.
- India needs to prepare itself for a period of information and digital abundance, adapt itself to the scorching pace of innovation and learn to collaborate on scale, quickly transform the idea into a breakthrough innovation, shift from a system of time-bound education to a mode of continuous learning and create more employment opportunities than what new and disruptive technologies take away.
- There is a need for good quality education to make India's youth a productive asset.
- Access to finance commensurate with maturity of the business model and beginning stage of the start-up lifecycle is extremely important to scale innovations.
- Corporates will have a key role in championing this on-going movement, leveraging the ART Model – Alliances, Relationships enabled through Technology.

Conclusion:

- Industrial Revolution that first began in Great Britain and later in United States (after end of Civil War) has helped nations in developing faster and easier means of mass production. It has transformed lives of people in many ways over about 250 years.
- India is also catching up with focussing on Industrial Revolution 4.0. Development of new technologies in this era can help the nations in many ways if these technologies are used effectively for the welfare of mankind.

Q) Amidst the expected future global financial and economic crisis, Military spending around the world still continues to boom. Discuss the factors driving such a boom, how would continued spending be justified in such an era ? (250 words)

[Indianexpress](https://www.indianexpress.com)

Why this question:

The article brings to us the findings of the report Stockholm International Peace Research Institute (SIPRI) that finds that the Total world military expenditure rose to \$1,822 billion in 2018, representing an increase of 2.6% from 2017. Thus it is important from exam point of view to analyse the impact of these findings.

Key demand of the question:

The answer must provide for a detailed analysis of the findings and the impact it has on world countries and peace.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.



Structure of the answer

Introduction:

write a few introductory lines highlight the facts of the report.

Body:

Answers must discuss the following aspects:

- Comment upon the findings of the report, discuss its relevance.
- World military spending in 2018 represented 2.1% of global gross domestic product (GDP) or \$239 per person. In 2018 the USA and China accounted for half of the world's military spending.
- Analyse what is the trend like – discuss how the spending boom is driven, above all, by the contest between America and China for primacy in Asia.
- Discuss the combination of factors that explain the increased military spending:
- Foreign policy objectives
- Real or perceived threats
- Armed conflict and policies to contribute to multilateral peacekeeping operations
- Availability of economic resources – refers to rapidly developing nations like China and India that have seen their economies boom in recent years. In addition, high and rising world market prices for minerals and fossil fuels (at least until recently) have also enabled some nations to spend more on their militaries.
- Conclude with significance of the report and what needs to be done?

Conclusion –

Conclude with way forward.

Introduction:

- According to new data from the SIPRI, total world military expenditure rose to \$1.8 trillion in 2018, representing an increase of 2.6 % from 2017. The five biggest spenders in 2018 were the United States, China, Saudi Arabia, India and France, which together accounted for 60% of global military spending. World military spending in 2018 represented 2.1% of global gross domestic product (GDP) or \$239 per person.

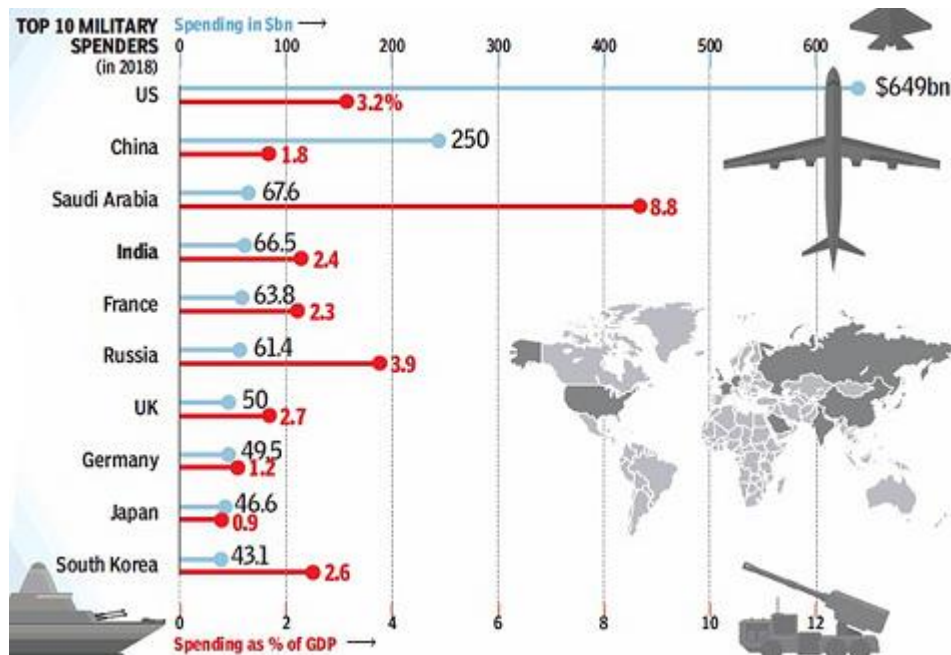
Body:

The factors driving such a boom:

- **Physical and psychological security threats:** These threats are more than just ordinary especially in case of India, a country located in a dangerous neighbourhood and facing both internal and external threats. Example: The West's "alarm" over emerging Chinese and Russian systems
- **Comprehensive national security:** It helps a nation attain its aspirations, and robust security is a subset of that. Military security involves the development of such capability to deter potential adversaries from undertaking inimical activities that may result in forms of adventurism or even proxy interference in a nation's affairs.
- **Potential Military Capability:** A country's defence spending represents the most direct way of measuring its potential military capability. In terms of gauging relative military strength, the size of defence budgets can be compared between countries over a set period of time.
- **Geography:** It is also a factor. Countries in Northern Europe aside from Britain, France and Germany can afford to invest less in their militaries knowing that blocs and alliances such as the EU and NATO will ensure their collective security. That's less true in Saudi Arabia, some say, which faces extremist threats from nearby wars in Syria, Iraq and Afghanistan, and Iranian-backed enemies like Hezbollah in Lebanon and the Houthis in Yemen.

Challenges posed by such extravagant spending:

- The increase would have to be on the capital side of the defence budget.
- Salaries, pensions and other operating expenses have full fund allocation with little scope to absorb extra funds.
- Raising the defence capital expenditure would leave the government with very little money for infrastructure and asset creation.
- As most defence equipment is procured from foreign countries, an increased capital budget would increase the defence import bill, and add to the current account deficit.
- This will require either an increase in the current tax rates, or a widening of the tax base.
- Both are difficult to achieve in the short term.
- It will thus not be feasible to substantially augment government's non-borrowing revenues



Way forward for India:

- The lack of a national security strategy, a national strategic culture and a transformational approach towards its military capability prevent it from obtaining optimum benefit from its defence expenditure.
- Decisions must be timely and procedures for acquisition are fast-tracked. Also, financial support should be sufficient with systems which do not call for a lapse of financial resources, once allotted.
- Management of expenditure also needs a complete revamp. Amid the focus on prevention of potential corruption, limited leakages could still be acceptable if timeliness of delivery is achieved even as more efficient procedures are implemented.
- Optimise the existing defence allocations, rather than seek a quantum jump in funds

Conclusion:

- A country's high expenditures on its military doesn't ensure a perceived high quality of life. The debate regarding how a government should balance military spending and domestic services dates back at least a century. The real issue is what is an "adequate" amount of military spending, given that every extra dollar spent above the necessary level is a clear loss for the economy as a whole. In a democracy, that issue is debated by publicly elected officials and changes year to year.

Q) What are Masala bonds? How do they work? Discuss the rationale behind them along with the pros and cons associated. (250 words)

[Indianexpress](https://www.indianexpress.com)

Why this question:

The state of Kerala became the first Indian state to tap into the market for masala bonds on Friday. Thus, it is important for us from exam point of view to ascertain into the concept of Masala Bonds.

Key demand of the question:

The answer must discuss in detail the concept of Masala bonds, pros and cons associated with their utility.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer

Introduction:

write a few introductory lines by stating the background of the question.

Body:

Answers must discuss the following aspects :

- What do you understand by Masala Bonds? – “Masala Bonds” are the 10 year off-shore rupee bonds issued by International Finance Corporation (IFC), a member of the World Bank group, in the international capital market in 2014, to raise funds for supporting private sector infrastructure



development initiatives in India. Masala bonds are listed in London Stock Exchange. The term Masala bonds now extends to any rupee denominated bonds issued to overseas buyers even though RBI has not resorted to the use of this name in their guidelines.

- Discuss their rationale – like any other off-shore bonds, are intended for those foreign investors who want to take exposure to Indian assets, yet constrained from doing it directly in the Indian market or prefer to do so from their offshore locations.
- Pros and cons associated – Offshore bonds have its own set of advantages and disadvantages for both the issuer and the investor as well as for the economy. Competition from offshore markets may induce improvements in domestic bonds markets such as strengthening of domestic market infrastructure, improving investor protection and removing tax distortions that hinder domestic market development etc. Against these benefits come the risks associated with financial openness and sudden shifts in capital flows, and the risk that offshore markets may draw liquidity away from the domestic market.

Conclusion –

Conclude by reasserting their importance in raising capital.

Introduction:

- Masala Bonds are rupee-denominated bonds i.e the funds would be raised from overseas market in Indian rupees.
- The term was used by the International Finance Corporation (IFC) to evoke the culture and cuisine of India. The first Masala bond was issued by the World Bank-backed IFC in November 2014. Recently, Kerala (Kerala Infrastructure Investment Fund Board) became the first Indian state to tap into the market for masala bonds to raise development funds.

Body:

Working:

- Any corporate, body corporate and Indian bank is eligible to issue Rupee denominated bonds overseas.
- For example, if an Indian financial entity issues Rs 1000 rupee denominated bond overseas, the buyer in overseas can buy the bond, paying equivalent amount of dollar/sterling.
- If the exchange rate was 1\$ = Rs 50, the bond buyer will pay \$20 (or Rs 1000) to buy the rupee denominated bond.
- Suppose the interest rate is 10%. Here, the Indian entity has to pay Rs 100 annually and this can be paid (in dollars etc.) at the prevailing exchange rate at the payment time.
- Now if the exchange rate depreciates to 1\$ = Rs 75, the bond buyer's interest revenue of Rs 100 equals just around \$1.3. He actually incurs losses in terms of dollars (might have got \$2 if the exchange rate was the same or in the case of dollar denominated bonds).
- Here, if the rupee' value has changed, the risk should be borne by the foreign investor. At the end of the time period, the issuer will give Rs 1000 and this can be converted into dollar at the prevailing exchange rate at that time

Rationale:

- Like any other off-shore bonds, are intended for those foreign investors who want to take exposure to Indian assets, yet constrained from doing it directly in the Indian market or prefer to do so from their offshore locations.

Pros:

- They help to internationalize the Indian Rupee and deepen Indian Financial system by expansion of Indian bond markets.
- They diversify the funding resources of Indian companies.
- They may help to bring down the cost of borrowing and cost of capital.
- Allowing Masala Bonds is considered to be a small step towards full convertibility of Rupee.
- Such bonds would support towards stability of rupee.
- By issuing bonds in rupees, an Indian entity is protected against the risk of currency fluctuation, typically associated with borrowing in foreign currency

Cons:

- RBI mandates that the money raised through such bonds cannot be used for real estate activities other than for development of integrated township or affordable housing projects.
- It also can't be used for investing in capital markets, purchase of land and on-lending to other entities for such activities as stated above.

**Conclusion:**

- India needs almost \$2 trillion for setting up world class infrastructure according to Economic Survey. The rupee-denominated bonds help in raising funds for the capital of infrastructure projects, green-field projects, brown-field projects.

Topic– Inclusive growth and issues arising from it.

Q) Discuss the concept of ‘Gender budgeting’ and analyse its significance in the Indian context. (250 words)

Reference

Why this question:

The question is intended to evaluate the concept of Gender budgeting.

Key demand of the question:

The answer must discuss the importance of Gender Budgeting in the Indian economy, one must narrate in detail the significance of it.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments

Structure of the answer:

Introduction:

In a few introductory lines appreciate the concept of Gender- Budgeting.

Body:

- Explain – Gender Budgeting initiatives aim to integrate gender concerns into fiscal policies and administration to address disparities.
- India formally adopted gender budgeting in 2005 and since then it is listing out ‘Women specific schemes’ and ‘Pro women schemes’ in budget.
- Explain what are the challenges involved in Gender – Budgeting? –
- Women must be given adequate representation and opportunity to voice their concerns in pre-budget consultation.
- Center should encourage states to include gender budgeting in their respective budgets, it is imperative because states get 42% tax devolution.
- According to census 2011 sex ratio is 940 women per 1000 men and women literacy rate is 64%
- Women constitute only 15% highest wage earner in India.
- Global Gender Gap report ranked India 87 in terms of inequality in economy, education, health and political representation.
- Discuss how Gender budgeting plays a significant role in addressing these inequalities and empowering women to achieve equality with men in all spheres of life.

Conclusion:

Conclude with importance of Gender budgeting and how Along with gender budgeting better implementation and planning are needed to ensure that these policies percolate right down to the last woman in the most remote parts of the country.

Introduction:

- Gender budgeting (GB) is a **practice that accounts budgetary measures to support gender commitments**. It is not just an accounting exercise but an ongoing process of keeping a gender perspective in policy/ programme formulation, its implementation and review.
- GB entails dissection of the Government budgets to establish its gender differential impacts and to ensure that gender commitments are translated in to budgetary commitments.

Body:

- Since 2005-06, the Expenditure Division of the Ministry of Finance has been issuing a note on Gender Budgeting as a part of the Budget Circular every year. This GB Statement comprises two parts- Part A and Part B.
- Part A** reflects **Women Specific Schemes**, i.e. those which have 100% allocation for women.
- Part B** reflects **Pro Women Schemes**, i.e. those where at least 30% of the allocation is for women.



Significance in the Indian context:

- **Global Gender Gap report 2018** ranked India 108 in terms of inequality in economy, education, health and political representation.
- The rationale for gender budgeting arises from recognition of the fact that national budgets impact men and women differently through the pattern of resource allocation.
- Women, constitute 48% of India's population, but they lag behind men on many social indicators like health, education, economic opportunities, etc.
- All measures across the globe taken towards development, poverty alleviation and improvement of social indicators like health, education and gender equality are worthless unless policies are implemented specifically for women and girls.
- Women face disparities in access to and control over services and resources.
- Bulk of the public expenditure and policy concerns are in "gender neutral sectors".

Challenges involved in Gender – Budgeting:

- First, there is **limited availability of disaggregated gender-specific data sets** for all schemes and programmes under various ministries. In the absence of this data, it is difficult to study the impact of budgetary allocations on gender equality.
- Second, the **budgeting exercise is linked to schemes instead of outcomes**. For example, in the Budget for 2015-16 there are funds allocated for infrastructure maintenance under the ministry of health and family welfare. However, there is very little data available on the impact these funds made in reducing female mortality rates.
- Third, there is an **immediate need to conduct an assessment of gender-specific parameters and set goals accordingly**. For example, it is important to understand time-bound goals for parameters such as female school enrolment, gender-based violence, health, labour force participation.
- Fourth, **authority should be created for gender auditing, to conduct an annual impact assessment of budgetary allocations for all schemes**, thus bringing accountability to the process.

Way forward:

- There is also a critical need for capacity building across government, corporates, public sector undertakings, NGOs and all involved agencies.
- While steps have been taken to mainstream the gender budgeting process at central and state government level, there is a definite need to deepen this process.
- A national-level reporting platform should be created under the ministry of statistics and programme implementation, which will collect the disaggregated data by sex for understanding the impact and outcome of the gender budgeting initiative.
- The Central Statistics Office should also be engaged for better data collection and analysis techniques.
- Shared responsibility between the central and state governments would accelerate this process.
- There needs to be shift from mere "reporting" of gender allocations to "purposive planning" with wider participation of women.
- The adoption of the GB should be accompanied by multifaceted and interrelated improvements to budgets in general and the gender sensitivity of budgets.

Conclusion:

- Gender Budgeting is a powerful tool for achieving gender mainstreaming so as to ensure that benefits of development reach women as much as men. The way Government budgets allocate resources, has the potential to transform these gender inequalities.

Q) Culture of 'bending rules' in India has repeatedly challenged the U.S. drug agency, in such a circumstance discuss the issues facing the Pharma industry in this direction ? Suggest measures to overcome the same. (250 words)

Livemint

Why this question:

Very recently Several Indian pharmaceutical companies have been accused of collusion to raise generic drug prices in the US. After facing American scrutiny over quality issues, India's pharmaceutical industry has again landed in the crosshairs of US regulatory action. Thus we have to analyse in detail issues surround

**Key demand of the question:**

The answer must discuss in detail the problems facing the pharmaceutical industry in India and the approaches to ensure long term viability.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer**Introduction:**

write a few introductory lines highlighting the issue.

Body:

Answers must discuss the following aspects :

- The answer must examine the Pharmaceutical (Pharma) industry and the changes that have occurred particularly over the last few years as a result of the overall economic downturn, the rising cost of healthcare and the costs associated with the development and sales of pharmaceuticals.
- Explain how the response of big Pharma to this has been the recent spate of partnerships, mergers and acquisitions, consolidation, diversification, licensing agreements and downsizing in both human and capital resources.
- Discuss the Culture of ‘bending rules’ in India and in what way it challenges U.S. drug agency.
- Suggest suitable measures to overcome the issues facing the industry.

Conclusion –

Conclude with way forward.

Introduction:

- India is the largest provider of generic drugs globally with the Indian generics accounting for 20% of global exports in terms of volume.
- In developing countries, India is rendering yeoman service by providing access to lifesaving medicines at affordable prices.
- Recently, several Indian pharmaceutical companies are accused of collusion to raise generic drug prices in the US. If guilty, punish them. But the fairness of the trial will be under watch

Body:**Issue background:**

- Forty-four US states have together sued 20 drugmakers, seven of them Indian, for the alleged fixing of generic drug prices at levels higher than what the market would set.
- Israel's Teva Pharmaceutical Industries, the world's largest producer of generic formulations, allegedly underpins a shadowy cartel designed to exert monopolistic power in the US.
- Fifteen individuals have also been named in the lawsuit filed in a court in Connecticut.
- The complaint alleges that senior executives of the offending companies often met at trade events, conferences, dinners and even golf outings, and kept in touch via phone and email to raise prices and carve up the market among themselves.
- According to the charges, collusion peaked between July 2013 and January 2015, a period when prices of more than 100 generics went up sharply, some by over 1,000%. These allegations are serious and, if proven, could deal a severe blow to Indian drug exporters that count the US as a major market for off-patent drugs.

Issues facing the Pharma industry:

- Because of fewer costs associated with generic medicines, multiple applications for generic drugs are often approved to market a single product; this creates competition in the marketplace globally, typically resulting in lower prices. Pharma sector in India is also facing steep headwinds on account of this.
- There is a lack of proper assessment of the performance of the pharmaceutical industry and its efficiency and productivity and due to this many plants have not survived.
- Unregulated online pharmacies or e-pharmacies emerging in India have been a major concern for authorized setups.



- There has been a significant drop in the flow of prescriptions as the Indian pharmaceutical industry has been witnessing a decline in the overall quality of its medical representatives (MRs). This is mainly on account of lack of training and support by the industry.
- In countries such as Russia, one requires to be a medical graduate to be a pharma sales representative. In the European Union, one needs to pass stringent examinations to become an MR. Once they qualify, they need to renew their certification every three years. But in India, even non-graduates are performing as MRs without proper guidance.

IPR related issues posed a serious threat to our industry, some of them are:

- Granting Compulsory Licences (LCs), although allowed by TRIPS agreement of WTO, western countries are blaming India for disrespecting patents transgressing India's judicial use.
- Emergence of new agreements like TPP, TTIP, RCEP seriously affect our industry without rational dealing on public health.
- Emergence of Voluntary Licence (VL) in agreements place restrictions on reaching the global markets.

Measures needed:

- India's strong innovation capabilities aided partnerships would help in overcoming these problems.
- The introduction of pharmaceutical product patents and the mandatory implementation of good manufacturing practices is the need of the hour.
- It is necessary for the Indian pharmaceutical industry to become globally competitive through world-class manufacturing capabilities, with improved quality and a higher efficiency of production, and there is a need to stress on the up-gradation of R&D capabilities.
- Training and development of human resources for the pharmaceutical industry and drug research and development should be done accordingly;
- There is also a need to promote public-private partnership for the development of the pharmaceuticals industry; promote environmentally sustainable development of the pharmaceutical industry; and enable the availability, accessibility, and affordability of drugs.
- Improvement in industrial practices to provide better training and support services for employees to perform their job functions.

Conclusion:

- The affordability of healthcare is an issue of concern even in India, and people here would welcome some clarity on the principles of fair pricing vis-à-vis medical products. It is important that the accused companies are given a good hearing. The Government of India has taken up a number of initiatives to create an ecosystem that fosters manufacturing in pharma industries.

Topic: Major crops cropping patterns in various parts of the country, different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers

Q) "Shift to Horticulture is a Way of Doubling Farmers' Income in India". Discuss along with the achievements of Mission for Integrated Development of Horticulture (MIDH) in this direction. (250 words)

The hindu

Why this question:

The question is intended to evaluate the potential of Horticulture as a standalone sector in India and how it can help double farmer's income and its role in proving to be a source of livelihood in Indian agriculture.

Key demand of the question:

The answer must discuss the importance of horticulture to India in doubling farmer's income along with the achievements of Mission for Integrated Development of Horticulture (MIDH).

Directive word:

Examine – When asked to 'Examine', we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.



Structure of the answer:

Introduction:

In a few introductory lines provide for current scenario of horticulture in India, provide for statistics – The Indian agricultural land covers area of 140 million hectares out of which, 17% of area is dedicated to horticultural crops that contributes to 30% of total agricultural GDP.

Body:

- The Horticulture is diversified to cover 6 subsectors namely vegetables, fruit crops, spices, ornamentals, plantation crops and mushrooms.
- Discuss how has the horticulture section performed lately in quantitative and qualitative terms? Also, frame the statistics comparing it with the overall agriculture sector.
- How can we increase our produce quality and quantity?
- Discuss the achievements of Mission for Integrated Development of Horticulture (MIDH).

Conclusion:

Conclude with potential of horticulture in India and need to harvest it.

Introduction:

- Within the agriculture sector, the horticulture sector is widely recognised as the most rapidly growing sector. It has been rightly called as the **silent revolution** because of its varied achievements.
- The Indian agricultural land covers area of 140 million hectares out of which, 17% of area is dedicated to horticultural crops that contributes to 30% of total agricultural GDP.

Body:

- **Mission for Integrated Development of Horticulture (MIDH)** is a Centrally Sponsored Scheme for the holistic growth of the horticulture sector covering fruits, vegetables, root & tuber crops, mushrooms, spices, flowers, aromatic plants, coconut, cashew, cocoa and bamboo.
- It subsumed six ongoing schemes of the Department of Agriculture and cooperation on horticulture development. Out of these six schemes three are centrally sponsored schemes: National Horticultural Mission; Horticulture Mission for North east and Himalayas; National Bamboo Mission and the three Central sector schemes: National Horticulture Board; Coconut Development Board; Central Institute of Horticulture, Nagaland

Achievements of MIDH (Cumulative Achievement (2005-06 to 2017-18)) are:

- **Area Expansion:** An additional area of 36.13 lakh ha. of identified horticulture crops has been covered.
- **Nurseries:** 4554 nurseries have been established for production of quality planting material. **Rejuvenation:** An area of 6.57 lakh ha. of old and senile orchards has been rejuvenated.
- **Organic Farming:** An area of 2.71 lakh ha. been covered under organic practices
- **Integrated Pests/Nutrient Management:** An area of 17.14 lakh ha. has been covered under IPM/INM
- **Integrated Pests/Nutrient Management Infrastructures:** 536 units of IPM infrastructures have been set up.
- **Protected Cultivation:** An area of 31 lakh ha. has been covered under Protected Cultivation.
- **Water Resources:** 95887 water harvesting structures have been created.
- **Beekeeping:** 31 lakh bee colonies with hives have been distributed.
- **Horticulture Mechanization:** 94 lakh horticulture mechanization equipments have been distributed.
- **Post Harvest Management Infrastructures:** 78776 post harvest units have been established.
- **Market Infrastructures:** 4144 market infrastructures have been set up.
- **Centre of Excellence:** 25 Center of Excellence have been established.
- **Training of Farmers:** under HRD, 21.71 lakh farmers have been trained under various horticulture activities.

Horticulture can help doubling farmer's income by implementing the following:

- Revisiting zones for different crops keeping into account the changing climate particularly in the hills.
- Ensuring availability of quality seed including hybrid of vegetables, flowers and planting material of fruit trees for better quality and produce.
- Diversification of Horticultural crops along with other activities like bee keeping mushroom cultivation, backyard poultry, sericulture, fish culture etc.,
- Post harvest management of horticultural crops through grading, packaging, and on farm primary processing for value addition and product development.
- Introduction of potential new varieties, and replacing the old and low productive varieties. Rejuvenation of old and unproductive orchards.
- Tree architecture management through training and pruning for enhanced quality and production of crops.



- Promotion of organic farming practices in vegetables and fruits production and suitable marketing must be done for the organic produce.
- Popularisation of local / indigenous or underutilised horticultural crops and promoting cultivation of flowers and medicinal plants.
- Promoting intercropping with vegetables, flowers, medicinal and aromatic plants and short duration fruit crops.
- Adopting drip irrigation cum fertigation system of irrigation for more crop per drop. Weather forecasting advisory body to be popularised for strategic planning of cultural practices for minimising losses.
- Promotion of contract farming and buy back arrangement for encouraging farmers to adopt horti based farming.
- Promotion of horti tourism in states like J&K, HP, Uttarakhand, and North eastern states.

Ministry of Agriculture & Farmer's Welfare, Government of India

Mission for Integrated Development of Horticulture

Production of quality planning material

- Nurseries, Tissue culture labs, seed infrastructure, hybrid seeds import of planning materials**
- Area expansion i.e. Establishment of new orchards gardens for fruits, flowers, and hybrid vegetables.**
- Creation of market linked cold-chain logistics and PHM facilities.**
- Rejuvenation of unproductive, old, and senile orchards**
- Creation of water resources structures and watershed management.**
- Protected cultivation i.e. poly-house, green-house, shade-nets, etc for growing off-season high value vegetables and flowers.**

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Conclusion:

- Over the years, horticulture has emerged as one of the potential agricultural enterprise in accelerating the growth of the economy. Its role in the country's nutritional security, poverty alleviation and employment generation programmes is becoming increasingly important. On account of significant production increases in horticultural crops across the country, a Golden revolution is in the offing and India has emerged as a leading player in the global scenario.



Q) Despite farm productivity rising in the country, severe distress in the Agriculture sector is still a cause of concern. How grave is the situation ? Discuss with respect to small and marginal farmers. (250 words)

The hindu

Why this question:

The article highlights the need for interventions that are required on demand and supply side to alleviate farm distress in the country.

In the current times of elections and their manifesto aiming at votes in the name of loan waivers, the author brings out causes and consequences facing the farm sector in the country.

Demand of the question:

This question seeks to examine

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction

Start with brief introduction – quote some facts to highlight the situation of farm distress in the country.

Body

Discuss the following points in detail:

- What are the factors causing farm distress in the country?
- Public investment in the sector as a percentage of GDP is also stagnant.
- Declining size of land holdings.
- prices are much lower than the MSP [minimum support price] in the market.
- long-term problems such as low capital formation in agriculture persist. Etc.
- Present a case of small and marginal farmers, why is their case different? – take hints from the article and provide for suitable points.
- What needs to be done? – suggest measures to overcome the distress.

Conclusion

Conclude with what needs to be done – suggest holistic approach required to address the problem.

Introduction:

- Farm incomes have been squeezed by slower output growth, higher costs and increased vulnerability to a changing climate.
- Economists said that the GDP deflator for agriculture is negative for the first time in many years. The NSSO Situation Assessment Survey of Agricultural Households (2013) shows that 52% of farming households are indebted, with rates as high as 89-92% in some States.

And there are a slew of new problems resulting directly from government policies. The recent marches to New Delhi, Mumbai by thousands of farmers are any indication, the farm sector has already sent up emergency flares.

Body:

Factors causing farm distress in the country:

- **High Input costs:**
 - Land degradation has become a major challenge and cost of farming is constantly rising with usage of fertilizer, pesticides, expensive seed varieties, machinery, labour cost, rise in fuel prices, vagaries of monsoon. This further complicates the livelihood of farmers
 - In India, farmers are poor due to low productivity (yield per hectare) of all major crops.
 - Growth in rural lending has decreased and indeed most of the rural lending is indirect rather than direct.
- **Farmers income remained low:**
 - India had record food production in 2017-18, but farmers' income remained low and stagnant.
 - According to Ashok Dalwai committee, farmer's income remained about 15-40% of consumer's price.
 - Studies conducted by the International Food Policy Research Institute and World Bank have confirmed this.



- **Government Policies:**
 - India has excessively dependent on MSP to drive crop planning by farmers. MSP is restricted only to few crops.
 - In good harvest years, neither are MSP increased to ensure a floor price that covers costs and offers a remunerative return, nor is enough procured to ensure that even the MSP offered serves as a floor for market prices.
 - The government continues to use old draconian measures, including stocking restrictions and bans on exports and futures trading, to even small increase in food prices. Such steps may bring temporary relief to consumers, but end up hurting farmers.
 - Fiscal conservatism has adversely affected public investment in irrigation, drainage and flood control.
 - Liberalised imports of agricultural commodities including foodgrains and cotton have dampened domestic prices
- **Middlemen troubles:**
 - As pointed out by Ramesh Chand, in Punjab, there are as many as 22,000 commission agents and innumerable middlemen in each market.
 - According to Ashok Gulati, former chairman of the Commission for Agricultural Costs and Prices, commission agents in Delhi charge exorbitant fees ranging from 6 per cent to 15 per cent.
- **Rigid Market Structure:**
 - Prevalence of APMC markers, trader cartels due to which low price for agri produce is offered specially due to bumper crop production.
- **Poor Infrastructure and Logistics:**
 - Lack of diffusion of adequate storage facilities lead to wastage. For instance farmers dump truckloads of vegetables on road.
 - Food Parks projects concentrated near to cities and poor maintenance leads to spoilage of the crops.
 - Cold storage units exist in less than one-tenth of the markets and grading facilities in less than one-third; electronic weigh-bridges are available only in a few markets.
- **Aggressive cultivation led to plunging in demand:**
 - Once prices have increased farmers cultivated the crop aggressively leading to plunging of prices.
 - Two years ago, garlic fetched an average Rs 60 per kg rate in Rajasthan's Kota mandi. Enthused by it, farmers in the Hadoti region planted more area, only to see prices halve last May.
 - Similar was the case for other vegetables. Example: Tomato, Toor Dal etc.
- **Pro-Consumer bias:**
 - In most years, for the majority of agri-products, the policymakers used restrictive export policies to keep domestic prices low. This showed the pro-consumer bias in the policy complex.
- **Information Asymmetry:**
 - A bumper crop can pull down prices in wholesale markets. Price spikes after a poor crop are inevitably dealt with through cheap imports in a bid to protect consumers. The opposite is done less frequently. This is due to lack of information.
 - The bountiful rains of 2016 resulted in record farm output. Prices crashed. Farmers are reported to have not been able to even recover the cost for some crops.
 - The prospects of a good monsoon pushed up rural wages. The reality of rock bottom prices then destroyed profit margins.

Measures needed:

- **Credit, finance and Insurance:**
 - A functional institutional credit system which is accessible and accountable to all cultivators.
 - This covers not only land-owning farmers but also sharecroppers, tenants, adivasi and women farmers, and animal-rearers.
 - Credit products for agriculture need to be tailor-made based on cropping and rain cycle, specific to a particular region. The regional offices of commercial banks should contribute in this exercise. Registration of all cultivators and providing Kisan credit cards.
 - The period of crop loan should be extendable to four years, given that, on average, every second or third year the spatial distribution of rain pattern is erratic in India.
 - Strengthen agricultural insurance, reforming agricultural marketing and introduction of model contract farming act



- **Input Costs:**
 - It is more important to make agriculture sustainable by reducing input costs of seeds, fertilizers and other inputs.
- **Remunerative Prices:**
 - Extending reach of minimum support price which has been dedicated to few crops and in a narrow geographical area is important.
 - Set up of Futures and Trade markets, tie up of farmer and private companies for procurement should be looked into as alternative methods against distress sale.
- **Agro- Produce Marketing and Processing:**
 - The agro-processing industry and warehousing needs to expand so that agricultural produce can be stored when prices plunge.
 - Promoting viable farmer collectives to act as a “collective voice of marginal and small farmers”.
 - Legislations on the basis of NITI Aayog’s new model law — Agricultural Produce and Livestock Marketing (Promotion and Facilitating) Act (APLM) should be enacted in all states.
- **Technology:**
 - Use of technology to aid farmers like drip and sprinkler irrigation.
 - Precision agriculture, GM Crops should be encouraged drought prone areas.
 - Space technology and Mobiles should act as “Eyes and Ears” of the farmers to assist in farming.
- **Distress Management:**
 - Establish farmers’ distress and disaster relief commissions at the national and State levels, based on the model of Kerala Farmers’ Debt Relief Commission.

Conclusion:

- Farmers’ distress is due to low prices and low productivity. **Limited procurement, measures to improve low productivity, and consolidation of land holdings to gain the benefits of size, can help in reducing agrarian distress.**
- The challenge before government is to deliver on the institutional solutions backed by a long term policy demanded by farmers as against temporary solutions of loan waivers

Q) What is the basic idea behind initiating the e Choupal ? Discuss how it has proved to be an aggregator of Agricultural Services. (250 words)

[The hindu](#)

Why this question:

YC Deveshwar, the man who transformed ITC into a multi-business conglomerate, passed away recently. The e Choupal is a flagship program of the ITC -aimed at linking directly with farmers via the Internet for procurement of products by entering the FMCG space in rural areas.

Key demand of the question:

The answer is straightforward, one must discuss in detail the flagship ITC program of e Choupal and significance of it in proving to be an aggregator of Agri services to the country.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer

Introduction:

write a few introductory lines, highlight the key aspects of e Choupal.

Body:

Answers must discuss the following aspects :

- What is e-Choupal? – the two-decade old initiative from ITC aimed to web-enable farmers to overcome challenges related to information access and procurement.
- Discuss the salient features of the project.
- Explain how it catalyzed the protection of farmers from the abuse of the agents? Acted as an agglomerate of agricultural services?
- The focus of the answer must be on the welfare aspect that the project brought in for the Farmers.
- Provide for way forward.



Conclusion –

Conclude by reasserting significance of such initiatives of private companies in policy making of the country.

Introduction:

- e-Choupal is an initiative of **ITC Limited**, a conglomerate in India, to link directly with rural farmers via the Internet for procurement of agricultural and aquaculture products like soybeans, wheat, coffee, and prawns.
- e-Choupal tackles the challenges posed by Indian agriculture, characterized by fragmented farms, weak infrastructure and the involvement of intermediaries. The programme installs computers with Internet access in rural areas of India to offer farmers up-to-date marketing and agricultural information.

Body:

The ITC chose to operate the platform on the following **three business principles**:

- (i) Free information and knowledge which ensures wider participation by the farmers.
- (ii) Freedom of choice in transactions (farmers after accessing information at the e-Choupal, are free to transact their own way.)
- (iii) Transaction based income, stream for the Sanchalak by tying his revenue stream to the transaction (on a commission basis.)

Implications of e-Choupal:

- ITC Limited has provided computers and Internet access in rural areas across several agricultural regions of the country, where the farmers can directly negotiate the sale of their produce with ITC Limited.
- Online access enables farmers to obtain information on mandi prices, and good farming practices, and to place orders for agricultural inputs like seeds and fertilizers. This helps farmers improve the quality of their products, and helps in obtaining a better price.
- ITC Limited kiosk with Internet access is run by a **sanchalak** — a trained farmer. The computer is housed in the sanchalak's house and is linked to the Internet via phone lines or by a VSAT connection.
- Each installation serves an average of 600 farmers in the surrounding ten villages within about a 5 km radius. The sanchalak bears some operating cost but in return earns a service fee for the e-transactions done through his e-Choupal.
- The warehouse hub is managed by the same traditional middle-men, now called **samyojaks**, but with no exploitative power due to the reorganisation. These middlemen make up for the lack of infrastructure and fulfill critical jobs like cash disbursement, quantity aggregation and transportation.
- Driven by **increasing smart phone penetration** in the country coupled with declining data costs, the FMCG and hospitality conglomerate plans to launch a mobile version of the programme by middle of 2019.
- Since the introduction of e-Choupal services, farmers have seen a **rise in their income levels** because of a rise in yields, improvement in quality of output, and a fall in transaction costs. Even small farmers have gained from the initiative.
- Farmers can get **real-time information** despite their physical distance from the mandis. The system saves procurement costs for ITC Limited.
- The farmers do not pay for the information and knowledge they get from e-Choupals; the principle is to inform, empower and compete. e-market place for **spot transactions and support services to futures exchange**.
- There are **6,100 e-Choupals in operation in 35,000 villages in 10 states** (Madhya Pradesh, Haryana, Uttarakhand, Uttar Pradesh, Rajasthan, Karnataka, Kerala, Maharashtra, Andhra Pradesh and Tamil Nadu), affecting around 4 million farmers. In Uttar Pradesh, the pilot project has reached out to nearly 2, 00,000 farmers.
- As part of the e-Choupal initiative forward, ITC has also launched a program — '**baareh mahine hariyali**' — focused on helping farmers multiply their incomes by maximising farm utilisation over 12 months of the year. The programme has been implemented in four districts of Uttar Pradesh including Allahabad, Chandauli, and Ghazipur and Bihar's Munger district.

Conclusion:

- E-Choupal, the two-decade old initiative from ITC aimed to web-enable farmers to overcome challenges related to information access and procurement, is set for a major makeover this year. The new model, called **e-Choupal 4.0**, will be rolled out in the next couple of months



Q) Looking at agriculture from the social safety net lens is perhaps the reason behind agriculture not being treated as an income generator, and this itself has most of the time contributed to farm distress. Critically analyse the statement with respect to various competitive support offers made through different income security schemes for the farmers. (250 words)

Epw

Why this question:

The article discusses in detail how the discourse on Indian agriculture has been dominated by farm distress leading to politics of competitive support offers.

Key demand of the question:

The answer must debate about the interrelationship that is witnessed between the farm distress and the social security aspects provided through various schemes and policies.

Directive word:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

In a few introductory lines explain the context of the question.

Body:

- Highlight the current scenario of agrarian distress looming the Indian scenario.
- Discuss how often the political discourse on agriculture has focused on support to farmers, notwithstanding that what has most failed the Indian agriculture is markets for outputs.
- Explain the flaws associated with the schemes that aim to provide social security net, as to why they lead to farm distress eventually.
- Discuss that Social protection programmes often aim to address the underlying market failures that may have contributed to the persistent state of poverty but however they end up leading to farm distress.
- Discuss what needs to be done? – change in policy directions, focus shift to markets etc.

Conclusion:

Conclude with what should be the way forward.

Introduction:

- The discourse on Indian agriculture has been dominated by farm distress leading to politics of competitive support offers.
- Several schemes have been pitched, such as the Pradhan Mantri Kisan Samman Nidhi, the Nyuntam Aay Yojana (NYAY), the Rythu Bandhu scheme of Telangana or the Krushak Assistance for Livelihood and Income Augmentation (KALIA) of Odisha.
- The unifying principle of these schemes is income or livelihood support for the farmers or poor households.

Body:

Cash transfer support schemes:

- Bhavantar Bhugtan Yojana in Madhya Pradesh was sought to provide relief to farmers by providing the differential between MSPs and market prices.
- The Rythu Bandhu scheme of the Telangana government provides ₹4,000 per acre for every season to all the farmers of the state. Similar initiatives have also been framed in Jharkhand and Odisha.
- In December 2018, Odisha launched the Krushak Assistance for Livelihood and Income augmentation (KALIA).
- Unlike RBS, KALIA is more complicated in design and implementation. It commits to give Rs 5,000 per SMF, twice a year, that is Rs 10,000 a year. It has already made payments to 1.2 million SMFs in January 2019.
- Recently the 2019 budget announced a scheme, Pradhan Mantri Kisan Samman Nidhi, under which vulnerable landholding farmer families, having cultivable land up to 2 hectares, will be provided direct income support of ₹6,000 a year.



Pros of support schemes:

- **Past experiences:**
 - Success of cash transfers for cooking gas, food and the rural jobs scheme also seem to have convinced the government on adopting the mechanism for agriculture.
- **Poverty reduction:**
 - Cash transfer programmes have become an important tool of social protection and poverty reduction
 - It has immediate impact on reducing hunger and rural poverty.
 - They can help households to overcome credit constraints and manage risk.
- **Better use:**
 - This can increase productive investment, increase access to markets and stimulate local economies.
 - Income support can be used to make a repayment or at least activate a bank account which can then receive a loan.
 - It can increase investment in agricultural inputs, including farm implements and livestock
- **Rural development:**
 - It can serve as an important complement to a broader rural development agenda, including a pro-poor growth strategy focusing on agriculture.

Negatives of support schemes:

- According to National Bank for Agriculture and Rural Development's All India Rural Financial Inclusion Survey (Nafis) small and marginal farmers earned Rs 79,802-1,19,878 in 2015-16.
- This means that the Rs 6,000 annual direct income transfer under PM-KISAN would be only about 5-8% of their existing income levels.
- This may not be much, particularly when compared with other direct income transfer (DIT) schemes rolled out in Telangana and Odisha.
- A Direct income transfer to landless labourers covered under KALIA's livelihood component is missing under PM-KISAN.
- Cash transfers are not greatly superior in terms of leakages compared to other schemes of in-kind transfer such as the public distribution system (PDS). Uncertainties in receiving uniform and periodic cash payment would reduce the validity of the scheme as income. Targeting errors are also likely.
- The real issue with the approach of a targeted cash transfer scheme is that it envisions the role of the state to only providing cash income to the poor. This kind of approach seeks to absolve the state of its responsibility in providing basic services such as health, education, nutrition and livelihood.
- Does not eradicate poverty:
 - It may address certain aspects of inequality by ensuring a basic income, they will not eradicate poverty. Poverty is measured as deficits in income or consumption, but the underlying causes of these shortages are linked to human capabilities and access to resources.
- Cash transfer scheme such as PMKSN cannot be substituted for subsidies and other institutional support systems such as the National Food Security Act-powered public distribution system. In fact, such cash transfer schemes could be counterproductive and may lead to more distress.
- Cash transfers do not solve the following problems which are the reasons for the current agrarian crisis
 - The Agrarian crisis is not just of low incomes in agriculture. The genesis of the current crisis lies in the faulty and ad hoc export-import policy, lack of infrastructure and cartelisation and collusion in agricultural markets, which have prevented farmers from realizing the market prices for agricultural produce.
 - Cash transfers do nothing to resolve any of these, nor are they any guarantee of protection against unforeseen events, whether natural or policy induced.
 - Cash transfer is neither a substitute for the structural reforms needed in agriculture, nor does it adequately compensate the farmer for the risks and uncertainty of crop cultivation.
- Regressive:
 - Except for the KALIA scheme, which offers some relief to the sharecroppers and landless labourers most other schemes are regressive with amount of transfer proportional to the land owned.
- Identifying beneficiaries is tough:
 - In sugarcane and cotton, much of the ground-level work is organised and in the hands of cooperatives, where the person who has the operational holding of land is well identified. But in crops where the ownership holding is different from the operational holding, it might be



- In the absence of proper tenancy records, it will also benefit the absentee landlords.
- It is no substitute for the lack of investment in agriculture, which has declined at 2.3% per annum in real terms
- By taking away precious fiscal resources, it makes the farmer more vulnerable to both market as well as non-market induced risks.
- Fiscal constraints to states:
 - The income transfer scheme will further erode the fiscal capacity of states.

Way forward:

- Policy focus should be rather on investment — in **efficient water management and irrigation, plant breeding and genetics, crop husbandry, market linkages and in breaking the middleman's hold over the farm-to-consumer value chain, replacing it with farmer-led enterprises, whether cooperatives or producer companies, that allow farmers to capture a share of the value added to their produce along its journey to the factory or home.**
- For a long-term solution, the government should first implement existing schemes, like it should give assured procurement and marketing of all commodities having MSP.
- The Swaminathan Committee in 2004 had recommended farmers be allowed to fix the price for their produce on their own (cost of production plus 50% as profit), keeping local factors in mind.
- Greater focus is required on enhancing farmer loan repayment capacity via smooth supply and value chains, and better price realisations.

Q) Write a short note on seafood industry of India. Explain the need for sustainable aquaculture to counter setbacks it is facing and increase the production. (250 words)

Economictimes

Why this question:

The article provides for a brief account of shrimp production in the country and the challenges that the seafood industry is witnessing.

Key demand of the question:

Answer must discuss the significance of seafood industry; the challenges and future it has for the country. Suggest what should be the way forward by focusing on the need for sustainable aquaculture.

Directive word:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In a few introductory lines highlight the facts related to seafood industry of India.

Body:

- In brief discuss the following aspects:
- In 2017-18, India's seafood exports have seen a growth of 13.7% in quantity and 10.1% in value. Research expects that in 2019 India's seafood exports will grow at 17-18%, clearly showing a demand for Indian products.
- his industry contributes 6.3% to the total global fish production and has 14.5 million people engaged in various fisheries-related activities.
- Explain the significance of the industry in terms of – livelihood, essential commercial enterprise in terms of exports etc.
- Discuss what are the challenges?
- Role and need of sustainable aquaculture.

Conclusion:

Conclude with way forward.

Introduction:

- India is blessed with a coastline of over 8,118 kms, 2.02 million sq. km of EEZ, 0.5 million sq. km. Continental shelf estimated to have exploitable resources to the tune of 4.41 million tons of which about 3.40 million tons are presently exploited.
- India's seafood industry has become one of the leading suppliers of quality seafood to all the major markets of the world. India has world class seafood processing plants that follow quality control regimes compliant to stringent international regulatory requirements.

**Body:****Potential:**

- The estimated potential brackish water area suitable for shrimp farming is about 1.2 million hectare of which around 14% is utilized for farming, producing about 5 lakh tons of shrimp and scampi which is going to the export basket.
- Shrimps account for around 70% of the total seafood export from the country valued at Rs 45,000 crore.
- In 2017-18, India's seafood exports have seen a growth of 13.7% in quantity and 10.1% in value. Research expects that in 2019 India's seafood exports will grow at 17-18%, clearly showing a demand for Indian products..
- Seafood exports from India during the year 2014 – 2015 reached to an all time high of US\$ 5.5 Billion. 106 countries in the world taste Indian seafood, SE Asia, EU, USA, Japan, China and Middle East being the major markets.
- India is the second largest aquaculture producer in the world, largest exporter of shrimp to USA, the 2nd largest exporter of shrimps to Europe and the 4th largest exporter of shrimps to Japan.
- MPEDA envisage an ambitious target of US\$ 10 Billion for the year 2020.
- This industry contributes 6.3% to the total global fish production and has 14.5 million people engaged in various fisheries-related activities.

Current challenges faced:

- Shrimp production in the country, after showing a consistent growth in the last decade, is likely to drop by 10 to 15% this year as low prices and fear of spread of diseases among shrimps have forced aquaculture farmers to cut production in the farms.
- The stocking in the farms in south Andhra Pradesh is down by half while in north and central parts of the state, the situation is better with 80% of the farms well stocked.
- The aquaculture farmers lost money last year when white spot and EHP diseases reduced the shrimp output. This year, the fear of diseases has led many to stock less in farms.
- Little improvement in global shrimp prices and lack of funding support to farmers are the other reasons for the reluctance of farmers to go for full output.
- With increasing adoption of **product quality standards**, especially with respect to health and safety, the occurrences of Indian shrimp shipments failing to meet these standards are becoming common.

Other challenges faced:

- Since 1990s, three issues dominated Indian export scene: decline in overall catches, particularly shrimp; fluctuations in international markets depressing prices and profitability; and over-capitalisation of the production and marketing activities increasing risk.
- The emphasis on production is not supplemented by developing adequate infrastructure facilities to support them; the availability and quality of infrastructure remains insufficient.
- The contribution of fish from the seas has lowered now and the share is rising from inland farming.
- Water pollution; unscientific management of aquaculture and contamination of indigenous germplasm resources.
- Poor yield optimization, problems in harvest and post-harvest operations, landing and berthing facilities for fishing vessels and issues in welfare of fishermen.

Way forward:

- The need of the hour is technology upgradation fund for sustainable aquaculture development
- The recent creation of separate department for fisheries and a 2% interest subvention on loans to farmers by the Centre will go a long way in accelerating this
- The group recently launched sustainable, traceable, quality certified aquaculture hub model at Tuticorin. This must be expanding this to larger areas by transferring technology developed by us to farmers covering the entire gamut of value chain, right from broodstock availability.
- An approach that is increasingly being used around the globe is the use of sustainability standards and certifications such as MSC (Marine Stewardship Council) or ASC (Aquaculture Stewardship Council) as a way to assure buyers of the safety, quality and environmental responsibility of their products.

Conclusion:

- Indian Aquaculture is highly promising and has grown over six and half fold in the last two decades with freshwater aquaculture contributing over 95% of the total aquaculture production.
- All the 3 sub sectors viz. Inland, Aquaculture and Marine fisheries have a lot of scope for improvement. The recent step of creating FAIDF is a praised step to boost the fisheries sector to the desired level.



Key demand of the question:

The answer must provide for a detailed analysis of the transformative changes that Indian power sector has witnessed recently. Our country jumped to 24th rank in 2018 on World Bank's Ease of Getting Electricity in the world as against 111th rank in 2014. This is a quantum leap. One has to justify the developments and bring out the shift in policy making that has led to such a transformative change. Also suggest what should be the way ahead to ensure power for all.

Directive word:

Analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer

Introduction:

write a few introductory lines – quote relevant facts justifying changing scenario of Indian power sector.

Body:

Answers must discuss the following aspects :

- Access to reliable and affordable energy increases the ease of living and generates employment. It powers the development of the country.
- Discuss the recent initiatives taken by the government in this direction, marked shift in policy making from traditional methods to modern technologies.
- Achievements – More than one lakh megawatts of new generation capacity has been added.
- Energy deficit has been brought down from 4.2 per cent to almost zero.
- India has become an exporter of electricity exporting electricity to Nepal and Bangladesh.
- One lakh circuit kilometres to the inter-state transmission capacity-connecting the entire nation to one grid.
- Now, for the first time we have One nation- One Grid –the entire network operating on one frequency. Power can be transferred seamlessly from one corner of the country to another.
- A major landmark to universal access to electricity was crossed when our country achieved 100% village electrification.
- What should be the way forward?
- Significance of power for all .

Conclusion –

Conclude with need for sustainable energy in future.

Introduction:

- Electricity is the key element in modern day life. Right from powering industrial units and running irrigation pumps to charging your mobile phones electricity does it all. Access to reliable and affordable energy increases the ease of living and generates employment.
- It is a prerequisite to digital connectivity in rural India, thereby opening new vistas for the people hitherto unconnected to the outer world. India's power sector is one of the key sectors which form the foundation of the growth of the country.

Body:

The recent initiatives taken by the government in this direction:

- Government of India launched “**Pradhan Mantri Sahaj Bijli Har Ghar Yojana**” (Saubhagya) in Sept. 2017 to achieve the goal of universal household electrification in the country by 31st March 2019.
- The scheme envisages providing last mile connectivity and electricity connections to all remaining households in rural as well as urban areas.
- In order to encourage Renewable Generation, Ministry of Power extended the waiver of ISTS Transmission charges and losses for Solar and Wind based Projects upto March 2022.
- In order to achieve the Renewable target of 1,75,000 MW of Renewable capacity by 2022, MOP issued Long Term Growth trajectory Renewable Purchase Obligation (RPO) for Solar as well as Non-Solar till the year 2022.
- With the aim of promoting renewable generation and reduction of emission, MOP issued a scheme on Flexibility in generation and scheduling of Thermal Power Stations to reduce emissions.
- MoP has issued a direction to the CERC under section 107 of the Electricity Act, 2003 on 30th May, 2018 for implementation of new Environmental Norms for Thermal Power Plants suggested by MOEF&CC.



- In order to reduce the overall cost of generation as well as cost of power to consumer (Company level merit order operation), MOP issued a scheme on Flexibility in generation and scheduling of Thermal Power Stations to reduce cost of power to consumers.
- In our endeavour for revival of the stressed assets, a Pilot Scheme was introduced by MOP in April 2018 to facilitate procurement of aggregated power of 2500 MW for 3 (three) years (covered under medium term) from the generating companies having coal based Power Plants which are already commissioned without having a power purchase agreement for the quantum of power the Bidder is willing to bid.
- Major reform initiatives are being taken by Ministry of Power which includes addressing various issues being faced by electricity sector through draft amendments proposed in Electricity Act 2003 and Tariff Policy, 2016.

Despite the fact that India has surplus energy, it is facing huge problems which serve as an obstacle for supplying electricity to all needy people. The troubles of power companies can be traced to structural issues such as the

- **Absence of meaningful price reforms**
- **Unreliable fuel supply** – Shortage of fuel for power plants has become very critical in recent months. Many of the coal mines sold off in auction, mandated by the Supreme Court verdict, are simply not operational.
- The unsustainable finances of public sector power distribution companies.
- Grid reliability challenges are more severe in dispersed rural areas than in cities.
- To install electrical connections to about 30 million homes that are still off the grid is a big challenge.
- Electricity supply is controlled and maintained by India's state governments, and, these government-owned distribution companies "remain the weakest link" in the power sector value chain.

Way forward: We need innovative solutions to address the electricity access challenges posed by rural India:

- The federal government must push the state-run distribution companies to carry out robust ground surveys and organize frequent camps to achieve the target so that not one household is left out from electrification.
- Considerable improvement in the operational efficiency of distributors through extensive and intensive change management and capacity-building programmes as well as strengthening of the electricity sub-stations and sub-transmission network are required.
- Decentralized renewable energy solutions such as mini-grids and rooftop solar, where the grid can't reach or reliably serve, and operating together is the most sustainable last-mile solution to reach consumers and achieve universal access to energy.
- Supply of coal will have to be increased by Coal India by following a strategy pursued during 2014-15 and 2015-16, when coal production saw an unprecedented increase
- Power-generating companies should not be saddled with the burden of cross-subsidising the renewable sector. This can be borne by the society (through taxation) and not by the entities that are already in trouble.
- Village-level entrepreneurs could be contracted to operate and maintain the local distribution while generating bills and collecting revenues from the customers.
- Banking on community relationships, these entrepreneurs could improve compliance on payments as well as curb stealing of power.
- Recruiting and training local youth could help address maintenance issues. This will also help in creating more skilled jobs and entrepreneurs in rural areas.
- Pre-paid and smart metering systems are other ways to encourage payments. Such solutions need to be piloted and tested.

Q) Discuss the objectives of Ujjwal DISCOM Assurance Yojana (UDAY), How far has UDAY been able to address the stagnation/decline in the electricity generation capacity of State power utilities ? (250 words)

[The hindu](#)

Why this question:

The article highlights the recent report made by Crisil that suggested State-owned power generation firms have to become commercially viable. Aggregate external debt of State-owned electricity distribution companies (discoms) is set to increase to pre-Ujjwal Discom Assurance Yojana (UDAY) levels of ₹2.6 lakh crore by the end of this fiscal, according to Crisil's analysis of discoms in 15 States, which account for 85% of the aggregate losses.

Key demand of the question:



Analyse in detail the role played by UDAY – its features and objectives, what are the current issues in the State power utilities, how is UDAY addressing it etc.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In a few introductory lines highlight the observations made by Crisil.

Body:

In brief discuss –

- Discuss the Scheme Objectives:
- The scheme was launched for operational and financial turnaround of State-owned Power Distribution Companies (DISCOMs).
- It aims to reduce the interest burden, reduce the cost of power, reduce power losses in Distribution sector, and improve operational efficiency of DISCOMs.
- Strategy of UDAY? – four initiatives (i) Improving operational efficiencies of DISCOMs; (ii) Reduction of cost of power; (iii) Reduction in interest cost of DISCOMs; (iv) Enforcing financial discipline on DISCOMs through alignment with State finances.
- What is the current scenario?
- Discuss the efforts of the government in this direction.

Conclusion:

Conclude with what needs to be done, suggest way forward.

Introduction:

- Ujwal DISCOM Assurance Yojana (UDAY) is a financial restructuring and efficiency enhancing program, aims to reduce the debt burden of the state owned electricity distribution companies (DISCOMs) started in 2015.
- Though the main component of UDAY is debt management, other measures like raising operational efficiency are also proposed to permanently settle the debt scenario of DISCOMs.

Body:

Objectives of UDAY:

- Improving operational efficiencies of DISCOMs;
- Reduction of cost of power;
- Reduction in interest cost of DISCOMs;
- Enforcing financial discipline on DISCOMs through alignment with State finances.

Features:

- Scheme aims at financial turnaround and revival of Power Distribution companies (DISCOMs) and ensures a sustainable permanent solution
- It allows power DISCOMs in selected states to convert their debt into state bonds as well as roll out number of measures to improve efficiency at power plants
- It improves operational efficiencies of DISCOMs, Reduce of cost of power, Reduce interest cost of DISCOMs, Enforce financial discipline on DISCOMs.
- Improve operational efficiency by swapping of coal linkages, monitoring technical and commercial (AT&C) losses, smart metering and feeder separation in states
- The operational efficiency includes compulsory smart metering, upgradation of transformers and meters to reduce electricity lost during transmission and distribution (or theft).

Appraisal of UDAY:

Positives:

- It took off well, with a large number of states joining the scheme. Several states took over the debt of their utilities, improving their liquidity situation. Anecdotal evidence also suggests an improvement in the power supply situation.
- Government's UDAY scheme has helped debt-laden discoms of 24 states to reduce losses to Rs 369 billion in 2016-17 from Rs 515.9 billion in the previous financial year.
- The participating states have achieved an improvement of one per cent in Aggregate Technical & Commercial (AT&C or distribution) losses and Rs 0.17 a Unit in the gap between Average Cost of Supply and Average Revenue realised in 2016-17

**Challenges persist:**

- Four years on, the results of UDAY remain unclear and questionable. Many tasks are running behind schedule like smart meter installations.
- AT&C losses remain high, with some states indicating losses of over 40 per cent, a far cry from the 15 per cent target.
- The gap between average cost of supply (ACS) and the average revenue realised (ARR) continues to be high in most states.
- Much of the NPA (non-performing asset) or bad loan resolution in the power sector is beyond UDA
- Over and above the prevailing maladies in the distribution system rising share of renewable energy (RE) is increasing the average cost of supply, as it is displacing consumption of low-cost coal.
- The bonds issued are essentially held by the same entities that had lent funds to the State electricity boards (SEBs).
- The interest received is lower by at least 4-6 per cent; this means that there is a loss of income. Intuitively, it can be seen that every ₹1 lakh crore of UDAY bonds issued involves a loss of up to ₹6,000 crore for banks and FIs that have lent money to them.
- There is no guarantee that there will not be future losses as there is no retribution if the State electricity boards choose not to reform. In fact, this has been kept out of the purview of the scheme.
- By also mandating that State governments have to progressively take over the losses of their SEBs, the Centre has put the onus on the States to deal with the problem.

Way forward:

- Discom business needs to be fundamentally restructured.
- Governance needs to be improved with greater resilience to political influence.
- Robust mechanisms need to be put in place to ensure tariff rationalisation and follow-through on subsequent increases.
- Market-friendly electricity reforms need to be introduced and enforced. This includes expanding the role of short-term markets, as well as strict enforcement of PPAs to assure investors and developers of the legal sanctity of contracts signed with discoms.
- Streamlining the open access process, with the fair application of additional surcharges will boost the demand for renewable energy from the commercial and industrial sectors.
- Discoms will have to be pushed harder to invest in technical solutions and infrastructure upgrade such as feeder separation, installing smart meters and undertaking detailed data collection and analysis.
- Strict Actions to curb Electricity theft and other actions those lead to Losses to DISCOMs.
- Integrating UDAY scheme with Make in India and Startup India to ensure overall Development.
- Integrating UDAY with KUSUM to increase amount of electricity to DISCOMS.

Q) Elaborate upon the key features of Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME-II) scheme, what is the potential it carries for India in the renewable energy sector? (250 words)

[Livemint](#)

Why this question:

The article discusses in detail in the coming of FAME-II, its impact on the energy sector of the country. The Inter-Ministerial Steering Committee of the National Mission for Transformative Mobility has recently decided to incorporate localization conditions to avail benefits under the FAME-II Scheme. Thus it is necessary for us to evaluate the scheme from exam point of view.

Key demand of the question:

The question expects

Directive word:

Elaborate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:**Introduction:**

Begin with brief on the significance of the scheme.

Body:

- Discussion should include the following aspects –



- salient features of FAME II scheme –
- aims to boost electric mobility and increase the number of electric vehicles in commercial fleets.
- Target: The outlay of ₹10,000 crore has been made for three years till 2022 for FAME 2 scheme.
- The government will offer the incentives for electric buses, three-wheelers and four-wheelers to be used for commercial purposes.
- Plug-in hybrid vehicles and those with a sizeable lithium-ion battery and electric motor will also be included in the scheme and fiscal support offered depending on the size of the battery.
- Discuss its potential – how FAME II scheme will help improve charging infrastructure.
- What are the issues and associated concerns?
- Discuss what can be done to overcome the concerns associated.

Conclusion:

Conclude with way forward.

Introduction:

- FAME India is a part of the **National Electric Mobility Mission Plan**. To promote manufacturing of electric and hybrid vehicle technology and to ensure sustainable growth of the same, Department of Heavy Industry is implementing FAME-India Scheme Phase – I [Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India] from 1st April 2015 till 31st March 2019.
- FAME-II proposes to give a push to electric vehicles (EVs) in public transport and seeks to encourage adoption of EVs by way of market creation and demand aggregation.

Body:

‘Faster Adoption and Manufacturing of Electric Vehicles in India Phase II (FAME India Phase II)’ scheme:

- The scheme with total outlay of Rs 10000 Crores over the period of three years (2019-20 to 2021-22) will be implemented with effect from 1st April 2019.
- This scheme is the expanded version of the present scheme titled ‘FAME India1’ which was launched on 1st April 2015, with total outlay of Rs. 895 crores.

Key Features:

- Emphasis on electrification of the public transportation that includes shared transport.
- In 3-Wheel (W) and 4-Wheel (W) segment incentives will be applicable mainly to vehicles used for public transport or registered for commercial purposes.
- In the 2-Wheel (W) segment, the focus will be on the private vehicles.
- To encourage advance technologies, the benefits of incentives, will be extended to only those vehicles which are fitted with advance battery like a Lithium Ion battery and other new technology batteries.
- The scheme proposes for establishment of charging infrastructure, whereby about 2700 charging stations will be established in metros, other million plus cities, smart cities and cities of Hilly states across the country so that there will be availability of at least one charging station in a grid of 3 km x 3 km.
- Establishment of Charging stations are also proposed on major highways connecting major city clusters.
- On such highways, charging stations will be established on both sides of the road at an interval of about 25 km each.

Potential of FAME-II scheme:

Automobile Sector:

- 100% FDI by automatic route is permitted in the automobile sector.
- Further, the sector is deregulated, both private sector and public sector are free to carry out investment in the automobile sector, including for manufacturing of Electric Vehicles and E-Buses.

Charging Infrastructure:

- The centre will invest in setting up charging stations, with the active participation of public sector units and private players.
- It has also been proposed to provide one slow-charging unit for every electric bus and one fast-charging station for 10 electric buses.
- Projects for charging infrastructure will include those needed to extend electrification for running vehicles such as pantograph charging and flash charging.
- FAME 2 will also encourage interlinking of renewable energy sources with charging infrastructure.

Challenges involved:

- **Coordination among various stakeholders:**
 - EVs, unlike ICE vehicles, involve several actors at the national, State and city levels, respectively



- Multiple ministries such as Road Transport and Highways, Housing and Urban Affairs, Heavy Industries, Power, New and Renewable Energy, External Affairs as well as national institutes such as NITI Aayog should work together.
- State and city-level players need to be involved so as to address several technical and infrastructural needs.
- **EV battery production:**
 - India does not produce lithium-ion (Li-ion) batteries currently, and companies making battery packs are dependent exclusively on imports from China.
 - This is a cost-saving strategy as setting up a cell manufacturing unit in India would be expensive.
 - But, accelerating EV use in India should be linked to the “Make in India” goal and domestic battery production.
- **Charging infrastructure:**
 - Charging infrastructure for electric vehicles in India has not been fully developed yet.
- **Jobs and the economic impact:**
 - India is one of the largest producers of motor vehicles and the sector is estimated to provide direct and indirect employment to 3 crore people. And it is estimated to grow further.
 - EVs have the potential to disrupt the mobility ecosystem, and, if implemented well, could have a positive impact on the economy as well as the urban environment.

Way forward:

- India needs auto industry’s active participation to ease electric mobility transition.
- The auto and battery industries could collaborate to enhance customer awareness, promote domestic manufacturing, promote new business models, conduct R&D for EVs and components, consider new business models to promote EVs.
- Government should focus on a phased manufacturing plan to promote EVs, provide fiscal and non-fiscal incentives for phased manufacturing of EVs and batteries.
- Different government departments can consider a bouquet of potential policies, such as congestion pricing, ZEV credits, low emission/exclusion zones, parking policies, etc. to drive adoption of EVs
- Both Central and State Governments should support clean energy research in general. That way, the government does its part in steering the policy ship

Conclusion:

- Environment-friendly EVs will reduce air pollution and thus contribute to the fight against climate change. As per **NITI Aayog’s report** EVs will help in cutting down as much as 1 Gigatonne (GT) of carbon emissions by 2030.
- The government should have a role. Instead of trying to pick winners, the government should focus on building an enabling business environment that supports research and innovation.

Q) What have been the major reasons for the development of solar energy in India despite its high potential ? Discuss the achievements so far and challenges in harnessing it. What should be the way forward. (250 words)

Why this question:

The question is about analyzing why is scope of producing solar energy so high in India with potential being one factor there are other factors too that push the development of Solar energy.

Key demand of the question:

Answer must discuss the causative factors of developing solar energy in India in detail.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In a few introductory lines state some facts/statistics related to solar energy production in India.

Body:

In brief discuss the following factors:

- Why is scope of producing solar energy so high in India? – India has tremendous scope of generating solar energy. The geographical location of the country stands to its benefit for



generating solar energy. The reason being India is a tropical country and it receives solar radiation almost throughout the year, which amounts to 3,000 hours of sunshine.

- Quote reasons apart from these above major factors – power requirements, dependency, export etc.
- Discuss the achievements so far.
- Issues and concerns associated
- What needs to be done?

Conclusion:

Conclude with significance of solar power to India.

Introduction:

- National Solar Mission envisages establishing **India as a global leader in solar energy**. The Mission has set the ambitious target of **deploying 100GW of grid connected solar power by 2022**. (40 GW Rooftop and 60 GW through Large and Medium Scale Grid Connected Solar Power Projects). The country's solar installed capacity reached **25.21 GW as of 31 December 2018**

Body:

The major reasons for the development of solar energy in India:

- **Energy Security:**
 - As Indian population continues to grow and the limited amount of fossil fuels begins to diminish, it may not be possible to provide the amount of energy demanded by the world by only using fossil fuels to convert energy.
 - India's current energy use is unsustainable.
 - India has been dependent to a large extent on energy imports to meet its national energy requirements.
 - It is estimated that at current rates of production, oil will run out in 53 years, natural gas in 54, and coal in 110.
- **Economic Constraints:**
 - India imports almost 80% of her oil needs, generates 60% of her electricity from coal-based thermal power plants. However, these being fossil fuels, they are dwindling at quick rates.
 - The **geo-political scenario** is volatile leading to energy insecurity of India
 - It not only results in huge government subsidies, but also substantial health and environmental hazards.
- **Social Needs:**
 - Nearly 300 million people in rural India lack access to grid-connected power, promoting use of archaic sources of energy such as kerosene, diesel, wood-fired chulhas, etc.
 - Mostly energy demands are fulfilled by subsidised kerosene, leading to loss for exchequer.
- **Environmental Concerns:**
 - India lying in tropical belt has an advantage of receiving peak solar radiation for 300 days, amounting 2300-3,000 hours of sunshine equivalent to above 5,000 trillion kWh.
 - Debate of global warming and climate change is compelling the world to move from fossil based energy towards clean and green energy.
 - With its pollution free nature, virtually inexhaustible supply and global distribution, solar energy is very attractive energy resource.
 - India's Intended Nationally Determined Contributions (INDC's) commitments include 100 GW of solar power out of 175 GW renewable energy by 2022.

Achievements:

- National Solar Mission envisages establishing **India as a global leader in solar energy**.
- The Mission has set the ambitious target of **deploying 100GW of grid connected solar power by 2022**. (40 GW Rooftop and 60 GW through Large and Medium Scale Grid Connected Solar Power Projects).
- The country's solar installed capacity reached **21 GW as of 31 December 2018**.
- India along with Paris, on the sidelines of UNFCCC's CoP 21 at Paris (2015) decided to set up **International Solar Alliance**.
- The ISA's major objectives include global deployment of over 1,000GW of solar generation capacity and mobilisation of investment of over US\$ 1000 billion into solar energy by 2030.

Challenges:

- India's solar story is largely built over imported products.



- India's domestic content requirement clause is facing legal challenge at WTO.
- India is facing challenge to balance Prioritising domestic goals and WTO commitments.
- The dumping of products is leading to profit erosion of local manufacturers.
- Indian domestic manufacturers aren't technically and economically strong to compete with Chinese companies.
- China's strong manufacturing base is giving stiff challenge to domestic manufacturer.
- Land availability in India for solar plant is less due to high population density.
- India's solar waste is estimated to be around 1.8 million by 2050 also needs to be tackled.

Way Forward:

- Strong financial measures are required to finance the solar projects, innovative steps like green bonds, institutional loans and clean energy fund can play a crucial role.
- Promotion of research and development in renewable energy sector, especially in storage technology.
- Proper mechanism should be provided to tackle China's dumping of solar equipments.
- Framework to avoid unnecessary delays in policy decision making and implementation.
- India needs a Solar Waste Management and Manufacturing Standards Policy.

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Topic: Science and Technology- developments and their applications and effects in everyday life

Q) What do you understand by Autonomous Vehicles ? Discuss the Ethical concerns involved in their launch. (250 words)

Indianexpress

why this question:

The article is in the backdrop of recent move by the Tesla that declared to offer fully autonomous vehicles by the second quarter of next year. The article tries to capture why the world is not yet ready for autonomous vehicles.

Key demand of the question:

The answer must provide for a detailed narration of what we understand by autonomous vehicles, what are the associated benefits and concerns, ethical issues involved and why the world is not yet ready to embrace the technology change.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer

Introduction:

write a few introductory lines about the move made by Tesla.

Body:

Answers must discuss the following aspects :

- What do you understand by Autonomous Vehicles? – A driverless car, also called autonomous car or self-driving car, is a vehicle which can sense its surrounding environment and can navigate without human input. It combines multiple sensors and techniques to perceive their surroundings like radar, laser light, GPS, odometer, computer vision, etc. The advanced control systems interpret the sensory information for identifying the obstacles, relevant signage and navigation paths.
- What are the issues involved in self-driving vehicles? – snow and weather; When it's heavy enough to cover the pavement, snow blocks the view of lane lines that vehicle cameras use to find their way, Pavement lines and curbs, Dealing with human drivers, Consumer acceptance etc.
- Quote the Uber incident of March 2018 and elaborate on the ethical issues and concerns involved such as – responsibility of the accident, can machines make ethical decisions?, law aspects, life and death etc.

Conclusion –

Conclude with what needs to be done?

Introduction:

- Self-driving vehicles are cars or trucks in which human drivers are never required to take control to safely operate the vehicle. Also known as autonomous or “driverless” cars, they combine sensors and software to control, navigate, and drive the vehicle.
- They use technologies like **radar, Lidar, sonar, GPS, odometry and inertial measurement units**. Advanced control systems interpret sensory information to identify appropriate navigation paths, as well as obstacles and relevant signage. Long distance trucks are seen as being in the forefront of adopting and implementing the technology.

Body:

The Ethical concerns involved with Autonomous vehicles are:

- **Decision making:**
 - Google, Tesla and other major companies aim to make driverless cars a reality, which they suggest could reduce accidents caused by human error.
 - However, fatal accidents that such autonomous vehicles have already experienced — such as the deadly collision in May 2018 of a self-driving Uber car with a pedestrian — suggest they will not only need to navigate roads, but potentially also the dilemmas posed by accidents with unavoidable deaths.
 - For example, should a driverless car hit a pregnant woman or swerve into a wall and kill its four passengers?



- **Accountability:**
 - In the case of any crash, it would arise issue of accountability whether car owner would be accountable or the manufacturer of that vehicle
- **Law vs Ethics:**
 - Autonomous cars are made to follow traffic rules strictly. But sometime traffic rules have to be compromised.
 - For example when a critical patient have to be taken to hospital. Some traffic rules like speed restrictions, breaking traffic signal in less traffic have to be broken to save the life.
- **Displaying human values:**
 - When the vehicle finds an injured person or an old lady, will it stop to help them and display the qualities of compassion and empathy?
 - will it stop by an accident and act as a good samaritan if need arises
 - Whether robots can amicably adapt to the human environment where interaction between the passenger and driver would be minimum may arise issue of developing companionship, cooperation, bonding which use to be with the human being.
- **Impacts on Environment:**
 - This will promote vehicle usage at a time when the objective is to reduce vehicles to reduce green house gas emissions
- **Livelihood of drivers:**
 - Job loss to drivers without compensatory skill development and job creation.
 - It is believed that in coming future automation will kill 69% of the job

Conclusion:

- The autonomous vehicles have been pegged to revolutionize the driving experience of passenger and have utility over vice like in case of safety of passenger. Any use of this emerging technology must be carefully used keeping in mind its ethical concerns in mind.

Q) Discuss the Impact of the Internet on our Daily Life, what are its Pros and Cons ? Elaborate. (250 words)

[Livemint](#)

Why this question:

The question is straightforward and is about analyzing the pros and cons of Internet.

Key demand of the question:

The answer must discuss the impact of use of internet on human beings.

Directive word:

Elaborate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Begin with brief on what is internet.

Body:

- Discuss – How does the Internet affect people's lives? – Internet impact on society is now making economic, social, and political changes around the globe.
- What are the side effects of Internet? – Emotional Symptoms of Online Addiction; Feelings of guilt, Anxiety, Depression, Dishonesty, Euphoric feelings when in front of the computer, Unable to keep schedules, No sense of time, Isolation Etc.
- Discuss who all it affects and how?
- What needs to be done to utilize it in the best possible way without much of disadvantage.

Conclusion:

Conclude with a way forward.

Introduction:

- Internet as part of the history is the most important invention around the world which connects people through phones, satellites and cables.



- People all over the world have access to it as it is everyday usage, and internet becomes globally real and in demand. The maximum effect of the internet is actually on the daily life of the individuals because indeed there is no aspect of life which is not influenced by the internet and its uses.

Body:

Impact of Internet:

Pros:

- Information technologies have wrought fundamental change throughout society, driving it forward from the industrial age to the networked era. In our world, **global information networks are vital infrastructure**.
- The Internet has changed business, education, government, healthcare, and even the ways in which we interact with our loved ones—it has become one of **the key drivers of social evolution**.
- Online, the conventional constraints of space and time disappear and there is a dizzyingly wide range of communicative possibilities. The impact of social media applications has triggered discussion of the **“new communication democracy.”**
- The **right utilization of Internet power is challenging for governments across the world**. Government expenses are reduced due to providing data and information for people on the government websites. People are taking advantages of Government policies and websites. Any government information and service are easily accessible for the citizens. Using tools such as Right to Information, we can have online access to important government documents.
- The Internet is one of the key factors **driving today’s economy**. Even in a tough macroeconomic framework, the Internet can foster growth, coupled with enhanced productivity and competitiveness.
- The Internet has clearly **impacted all levels of education** by providing unbounded possibilities for learning. I believe the future of education is a networked future. People can use the Internet to create and share knowledge and develop new ways of teaching and learning that captivate and stimulate students’ imagination at any time, anywhere, using any device.
- The most interesting aspect of the internet influencing our daily lives is the factor of **entertainment**. Entertainment no longer demands your money or expense, today you can just log on the internet in your free time and get involved talking to people of similar interests, or watch movies or play games, its all there in the internet.
- The development of information and communication technologies and the wide-ranging effects of globalization are changing what we are, and the meaning of cultural identity. The concepts of space, time, and distance are losing their conventional meanings. **Cultural globalization** is here, and a global movement of cultural processes and initiatives is underway.
- The Internet revolution is not just technological; it also **operates at a personal level**, and throughout the structure of society. The Internet makes it possible for an unlimited number of people to communicate with one another freely and easily, in an unrestricted way.

Cons:

- A key issue surrounding Internet use is **privacy**. Internet users are becoming more sensitive to the insight that privacy is a must-have in our lives. It’s very tough even for the government of various countries to protect user’s privacy.
- The biggest challenge for the society to do mobile banking and cashless transactions. Because the **data is compromised** by such companies and there is no guarantee that you’re safe or not.
- Much of the time, people started to use social media with no real idea of the dangers, and have wised up only through trial and error—sheer accident, snafus, and mistakes. Lately, inappropriate use of social media seems to hit the headlines every day
- Internet has given rise to **cyber crime** of which mostly teenagers and youngsters become the victim. We all hear in our day to day life about these cases for eg. Leaking someone’s private clips or pictures on internet just for the sake of jealousy or taking revenge or for hacking.
- The Internet is **creating robotic societies**. A society with hybrid skills doing like, comments but doesn’t have feelings and own impact on his/her social shares.
- The Internet is also helping the polarization of the society by dividing the unity of people by **producing communalism and casteism material on the internet**. Producers of communalism and casteism in the society never develop the society.
- If technology can replace a task, we will rely on it rather than exercise our mental faculties. So, the tech giants will give birth to a “reliance economy”.

**Conclusion:**

- Today almost all the things are connected and working through the Internet. There should be no doubt that Internet is becoming the engine of every new invention.
- No matter how bad society is influenced by the internet, but education of people can play a role in right usage of Internet. The role is not defined by algorithms, it is defined by our parents, teachers and after self-analysis.

Q) Breaking down the boundaries guarding our privacy ? Debate the benefits these technologies offer with respect to the data breaches they make. (250 words)

Livemint

Why this question:

The article captures the debate of pros and cons that Internet of things bring to us. It analyses the issue of data privacy and surveillance of the IoT. One has to weigh the pros and cons for the same.

Key demand of the question:

The answer must argue in detail for and against the Internet of things, one has to analyse the positives and negatives of the IoT.

Structure of the answer:

Introduction:

Briefly explain the concept of Internet of Things and how Internet of things has been a buzzword in today's fast-paced world. Internet of things is a core technology in today's era.

Body:

Body of the answer should discuss the following aspects:

- Start by explaining what are the benefit of Internet of things?
- Discuss the three of the main concerns that accompany the Internet of Things are the breach of privacy, over-reliance on technology, and the loss of jobs.
- Aspect of Privacy and security – In today's tech-driven world, each and every device that an individual uses is connected via the internet. This increases the risk of any leakage of data that might be important. This is a major drawback of sharing information, as confidential information might not be safe & could be hacked by third parties easily.
- Present points on how it proves to provide an unpermitted data surveillance breaching boundaries of privacy.
- Conclude as to what can be the way ahead.

Conclusion:

Conclude with measures to prevent such data breach and what can be the way forward with it.

Introduction:

- Internet of things is an integrated system in which devices are connected in a network of information in such a way that they can communicate with each other without any human intervention. It creates an intelligent system of systems which can manage multiple activities of human concern like traffic control, health management, optimal use of electricity and inventory management etc.

Body:

Benefits offered by IoT technologies:

- **Unprecedented connectivity:** IoT data and insights from connected applications and devices empower organizations with the ability to deliver innovative new products and services faster than their competitors.
- **Increased efficiency:** IoT networks of smart and intelligent devices provide real-time data to arm employees with the information they need to optimize their day-to-day efficiency and productivity.
- **Cost savings:** IoT devices provide accurate data collection and automated workflows to help organizations reduce their operating costs and minimize errors.
- **Time savings:** Connected smart devices can help organizations enhance the performance of systems and processes to save time.

However, the challenges posed by IoT are critical:

- More than 7 billion devices will need to be made secure by their manufacturers before 2020.
- The need to secure every connected device by 2020 is "critical".
- IoT botnets, created using a network of out-of-date devices took large websites and services offline in 2016.
- Everything that's connected to the internet can be hacked, IoT products are no exception to this unwritten rule. (Remember the car hacking scene in the 'Fate of the Furious' movie).



- If every product becomes connected then there's the potential for unbridled observation of users. This will create a lot of privacy issues.
- In today's tech-driven world, each and every device that an individual uses is connected via the internet. This increases the risk of any leakage of data that might be important. This is a major drawback of sharing information, as confidential information might not be safe & could be hacked by third parties easily.
- IoT devices collect and share personal data in real-time, thus raising concerns on protecting personal information and privacy.
- There is growing concern about the potential for increased government surveillance and a resulting encroachment of civil rights to suppress dissent or marginalise communities.
- Additionally, the annual cost of cybercrime is over \$1 trillion.
- Since the IOT is capable of processing the tremendous amount of real-time data, it is possible for hackers and miscreants from accessing and manipulating those data.
- Also, several regulations across the world indicate that IoT companies need to collect user consent prior to collecting the said data.
- However, there is a debate around how best to communicate and receive consent for personal data collected.
- In the future, intelligence services might use the internet of things for identification, surveillance, monitoring, location tracking, and targeting for recruitment, or to gain access to networks or user credentials.

Conclusion:

- Policy-makers, regulators, device manufacturers, supporting industries and service providers will all have to join hands in creating a safer space online.
- We need to upgrade our laws to appropriately account for the impact that IoT will have on our lives.
- The Justice Srikrishna Committee had recommended some provisions for personal data protection including a consumer's right to information, consent, and right to request companies to erase their data if preferred.
- However, it leaned heavily towards greater regulations and did not specify how to protect consumer data from unnecessary government surveillance.
- Despite these challenges, India must drive full speed ahead towards IoT technology for the greater good of our citizens.
- With effective global alliances and Indian stakeholder alignment, we can work to create more secure devices and help our citizens.

Q) With RISAT-2B, India has resumed its course back on radar imaging space fleet, discuss its significance elucidating upon its application across the domains. (250 words)

[Economictimes](https://economictimes.india.com/news/technology/space/isro-launches-risat-2b-satellite-6848481)

Why this question:

In a pre-dawn launch on Wednesday, Indian space agency ISRO scripted history by successfully launching earth observation satellite RISAT-2B that would enhance the country's surveillance capabilities among others.

Key demand of the question:

The answer must discuss in detail significant features of RISAT- 2B and importance it brings to India in terms of radar imaging space fleet. One must list out in detail the application aspects of such a mission.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer

Introduction:

write a few introductory lines on RISAT – 2B.

Body:

Answers must discuss the following aspects :

- The salient features of the satellite launch – RISAT -2B
- What are its capabilities?
- Why is the mission important to India?
- What are the applications it brings – in the fields of – agriculture; crop estimation, forestry, soil, land use, geology and during floods and cyclone.



- Its significance to security forces and disaster relief agencies etc.

Conclusion –

Conclude with significance of such a mission to India.

Introduction:

- RISAT-2B, the country's newest microwave Earth observation satellite, rode to its orbit 557 km above the ground. Dubbed as a '**spy**' satellite, RISAT-2B (Radar Imaging Satellite-2B) will replace its predecessor RISAT-2 which has been actively used by India to monitor activities in terror camps across the border in Pakistan to thwart infiltration bids by terrorists.

Body:

Significance of RISAT-2B:

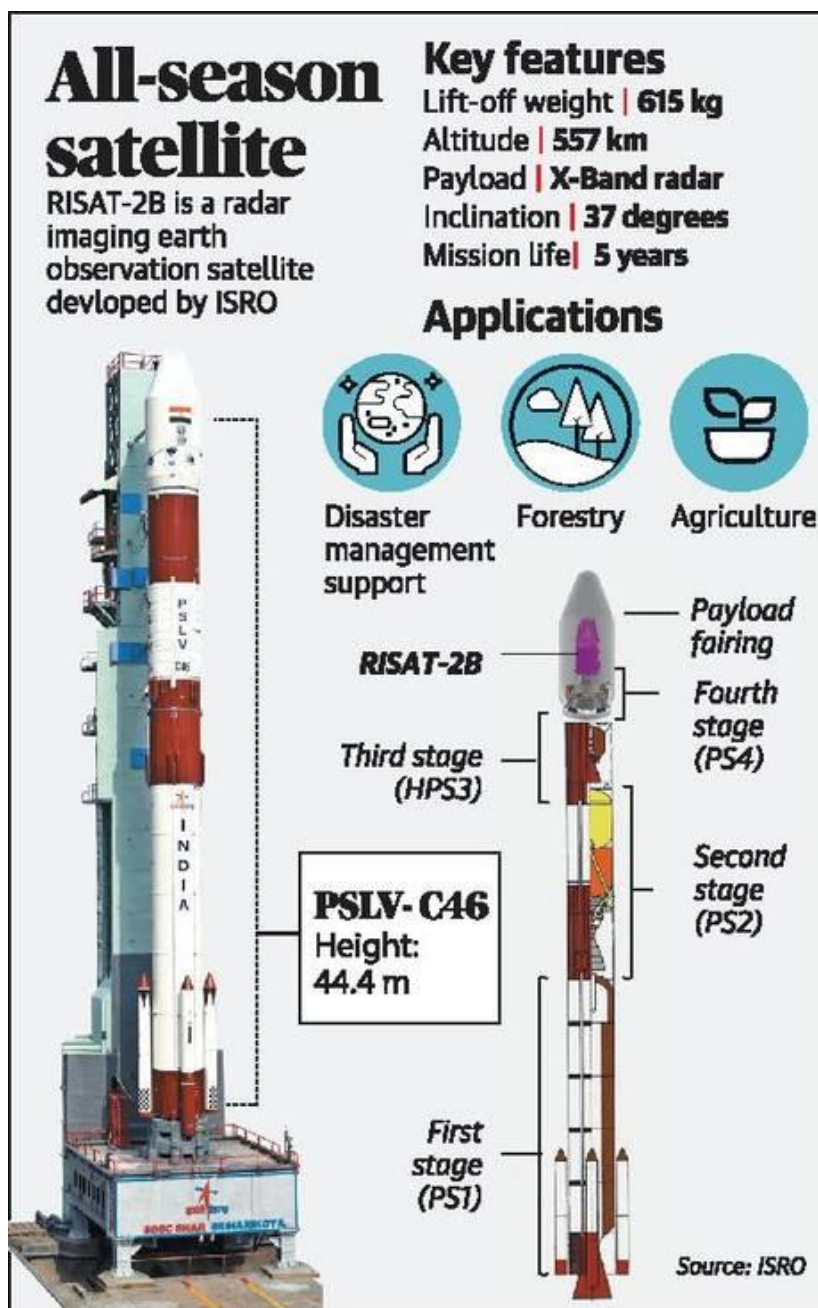
- RISAT-2B adds to India's capability to observe the earth in all weathers and all conditions.
- Regular remote-sensing or optical imaging satellites work like a light-dependent camera that cannot perceive hidden or surreptitious objects in cloudy or dark conditions.
- Satellites that are equipped with an active sensor, the synthetic aperture radar (SAR), can sense or 'observe' Earth in a special way from space day and night, rain or cloud.
- A radar imaging satellite is complex to assemble. Interpreting its images is equally complex.
- It will mark the resumption of a vital ring of Indian all-seeing radar imaging satellites after seven years.
- It will add to the reconnaissance capability from about 500 km in space. A constellation of such space-based radars means a comprehensive vigil over the country.
- It will enhance India's monitoring capabilities for civil and military purposes.

Applications of RISAT-2B:

- Radar imaging is important for surveillance applications, as it does not require sunlight or clear skies to be able to observe its target.
- Providing data for national security agencies.
- crop monitoring during the monsoon season
- forestry mapping for forest fires and deforestation
- flood mapping as part of the national disaster management programme

Conclusion:

- The satellite will enhance India's capability in crop monitoring during the monsoon season, forestry mapping for forest fires and deforestation, and flood mapping as part of the national disaster management programme.
- The biggest advantage is that ground imageries can be collected during rains and despite dust, clouds or darkness and during all seasons, thus ensuring continuous and reliable data.





Q) “The fear of AI and autonomous machines as a threat to humanity is misguided.” Critically analyse the statement with respect to the Indian Scenario. (250 words)

Livemint

Why this question:

The article captures effects of digitization on Jobs, it critically analyses whether Artificial intelligence and autonomous machines create or take away Jobs of humans.

Key demand of the question:

The answer must debate about the consequences of AI and machines on current Jobs and employment scenario.

Directive:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

In a few introductory lines quote some relevant facts to highlight the mixed effect of AI and machines on jobs and employments as of now.

Body:

- First discuss how artificial intelligence (AI) and robotics are being seen to replace human beings in all kinds of jobs.
- Discuss the past Industrial revolutions; how they only improved the Jobs and never failed employment scenario in terms of mass jobs, better technology etc.
- The more likely scenario is humans and robots working in harmony. AI expands the potential of humans. Humans will learn value-added tasks, while self-learning robots pick up new skills on their own.
- Digitalization will transform work with people having higher qualification and competence profiles but won't replace it: people will always be indispensable. Digitalization will create more jobs than it takes away.
- Have a section discussing Indian scenario – what needs to be done?
- Conclude with way forward.

Conclusion:

Conclude with importance of a balance between the two.

Introduction:

- AI and autonomous machines threaten 69 per cent of the jobs in India, while 77 per cent in China, according to a World Bank research which has said that technology could fundamentally disrupt the pattern of traditional economic path in developing countries.
- The fear of AI and autonomous machines as a threat to humanity is misguided. The more likely scenario is humans and robots working in harmony. AI expands the potential of humans.

Body:

The increasing threatening to jobs by artificial intelligence (AI) and robotics:

- Various automation technologies are in the process of overhauling the mass employment-generating but low skilled blue-collar labour markets. They could also threaten skilled white-collar workers.
- For instance, JP Morgan Chase and Co. developed a programme called COIN, a learning machine that interprets legal agreements in just a few seconds, a task that consumed 3, 60,000 work hours for lawyers and loan officers annually.
- Similarly, an American medical school tested IBM's AI technology Watson to analyse 1,000 cancer diagnoses. In 99% of the cases, Watson was able to recommend treatment plans that matched the suggestions of well-renowned oncologists.
- As the world gets more competitive, as manufacturing gets more competitive, it will use more automation, robotics, technology.
- New technologies like AI and Robotics improve the functional efficiency drastically than manual methods. Thus large industries will increasingly shift towards the automation in the quest of higher productivity.
- Information technology (IT), IT-enabled services (ITeS) and security services, followed by banking, will be the first sectors to feel the heat, wherein manual transactions and processing jobs will become obsolete.



- Huge numbers of services jobs in these sectors will be made redundant as a few lines of code will be able to perform the same tasks efficiently and effectively, according to PeopleStrong (HR solution firm).
- Increasing Automation also reduces the proportion of creation of new jobs. This could hurt India in longer run.

However, the fear is not true:

- Impact of Automation will be felt where the jobs cost the highest in the next 10-15 years. If India grows at 8% a year, with a labour productivity increase of 1.5% a year, jobs should grow at a rate of 6.5% a year. With automation, jobs may grow within a band of 4-5% a year for the next 10 years.
- Accenture said AI has the potential to increase India's annual growth rate of gross value added (GVA) by 1.3 percentage points, lifting the country's income by 15 percent by 2035.
- The cost of initial automation and robotics is high. In a country where wages are much lower than such costs, impact will be felt at a slower pace and much less than elsewhere.
- Further increasing Automation may not affect Indian agriculture due to factors like land fragmentation and dominance of small and marginal farmers.
- Creating AI portal will help the nation to create more jobs as Artificial Intelligence, Machine learning, Robotics and the integration of Machine learning with Biological sciences where the graduates can play an important role in the future.
- The establishment of the National Centre of AI as a hub along with centres of excellence and identification of Nine priority areas is a step in the right direction.
- The digital infrastructure in the digital economy of 2030 can be built upon successes achieved in recent years in digitisation of government processes and private transactions

Potential areas for AI applications in India:

- It can complement Digital India Mission by helping in the big data analysis which is not possible without using AI.
- Targeted delivery of services, schemes, and subsidy can be further fine-tuned.
- Smart border surveillance and monitoring to enhance security infrastructure.
- Weather forecasting models may become proactive and therefore preplanning for any future mishaps such as floods, droughts and therefore addressing the farming crisis, farmer's suicide, crop losses etc.
- By analyzing big data of road safety data and NCRB (National Crime Record Bureau) data for crimes, new policies can be formulated.
- Disaster management can be faster and more accessible with the help of robots and intelligent machines.
- In the counterinsurgency and patrolling operations, we often hear the loss of CRPF jawans which can be minimized by using the robotic army and lesser human personnel.
- AI can be used to automate government processes, therefore, minimizing human interactions and maximizing transparency and accountability.
- It can be applied to study ancient literature upon medicines and therefore help in modernizing the health care with the juxtaposition of modern machines and ancient techniques.
- In the remotest areas where the last leg of governance is almost broken, AI can do the job. For Example: in the tribal areas and the hilly areas of the northeast.

Way forward

- Ensure interpretability of AI systems:
 - Decisions made by an AI agent should be possible to understand, especially if they have implications for public safety or result in discriminatory practices.
- Empower users:
 - The public's ability to understand AI-enabled services, and how they work, is key to ensuring trust in the technology.
- Responsible deployment:
 - The capacity of an AI agent to act autonomously, and to adapt its behaviour over time without human direction, calls for significant safety checks before deployment and ongoing monitoring.
- Ensure accountability:
 - Legal certainty and accountability has to be ensured when human agency is replaced by the decisions of AI agents.
- Consider social and economic impacts:
 - Stakeholders should shape an environment where AI provides socioeconomic opportunities for all.



- Open Governance:
 - The ability of various stakeholders, whether in civil society, government, private sector, academia or the technical community to inform and participate in the governance of AI is crucial for its safe deployment.

Q) Discuss the major objectives of Mission Gaganyaan – India's maiden human spaceflight programme. (250 words)

[Timesofindia](https://timesofindia.com)

Why this question:

The Indian Air Force (IAF) has signed a Memorandum of Understanding (MoU) with Indian Space Research Organisation (ISRO) for astronaut selection and training for ambitious Gaganyaan Programme, scheduled for 2022.

Key demands of the question:

The answer is straightforward and must discuss the mission in detail – objectives, significance and way forward.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

One can start by bringing out the highlights of the mission.

Body:

Answer to the question the straightforward, In brief discuss the detailed objectives of Gaganyaan Mission, Gaganyaan Mission is India's maiden human spaceflight programme, scheduled for 2022.

Conclusion:

Conclude with significance of the mission and state its importance.

Introduction:

- Mission Gaganyaan is India's first Human Space Flight Programme to be launched by Indian Space Research Organisation (ISRO) by 2022. The programme will make India the fourth nation in the world to launch a Human Spaceflight Mission. So far, only the USA, Russia and China have launched human spaceflight missions.

Body:

Objectives of the Mission:

- Enhancement of science and technology levels in the country
- A national project involving several institutes, academia and industry
- Improvement of industrial growth
- Inspiring youth
- Development of technology for social benefits
- Improving international collaboration

Relevance of a Manned Space Mission for India:

- **Boost to industries:** The Indian industry will find large opportunities through participation in the highly demanding Space missions. Gaganyaan Mission is expected will source nearly 60% of its equipment from the Indian private sector.
- **Employment:** According to the ISRO chief, the Gaganyaan mission would create 15,000 new employment opportunities, 13,000 of them in private industry and the space organisation would need an additional manpower of 900.
- **Technological development:** Human Space flights are frontier field in the science and technology. The challenges the Human Space Flights provide to India, and the benefits accruing from taking up those missions will be very high and will lead to further thrust for technological developments in India
- **Spurs research and development:** It will boost good research and technology development. With a large number of researchers with proper equipment involved, HSF will thrust significant research in areas such as materials processing, astro-biology, resources mining, planetary chemistry, planetary orbital calculus and many other areas



- **Motivation:** Human space flight will provide that inspiration to the youth and also the national public mainstream. It would inspire young generation into notable achievements and enable them to play their legitimate role in challenging future activities
- **Prestige:** India will be the fourth country to launch human space mission. The Gaganyaan will not only bring about prestige to the nation but also establish India's role as a key player in the space industry

Way forward:

- It is important to ensure engagements at political level to obtain long term commitment for India's human space flight missions
- Financial implications of a long-term human space-flight programme development should be assessed and the returns and benefits should be clearly articulated
- It is important to overcome the technological challenges to ensure a safe, successful manned space mission. International collaboration in this domain can help India ensure a robust technology for its HSF programme.
- Selection of Indians for astronauts will be an important step. Procedures and specifications for astronauts and a rigorous selection process is suggested.

Topic: Awareness in the fields of IT, Space, Computers, robotics, nanotechnology, biotechnology and issues relating to intellectual property rights.

Q) "Space start-ups are the new sunrise industry". Comment. (250 words)

The hindu

Why this question:

The question is in the backdrop of the coming of NewSpace India Ltd. (NSIL) as a commercial entity of Department of space along with the existing Antrix – the commercial arm of Indian department of space.

Demand of the question:

This question seeks to examine the coming of space start ups as the new sunrise sector. In the last few years India has witnessed a boom and more than a dozen space focused startups have emerged. In such a scenario the coming of commercial arms makes a difference. One has to suggest and highlight the importance of such entities.

Directive word:

Comment– here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction

Start with brief introduction of the space industry in India.

Body

Discuss the following points in detail:

- Background – In February 2019, the Union Cabinet had cleared a new business arm for Department of Space (DoS). On March 6, 2019, the DoS registered NewSpace India Ltd. (NSIL) as its commercial entity.
- NSIL is the second commercial entity of the Department of Space (DoS) after Antrix Corporation Limited, which was set up in 1992 to market the products and services of the Indian Space Research Organization (ISRO).
- What is the mandate of NSIL ? how will it effect space industry ?
- Significance of Space startups in Indian scenario.

Conclusion

Conclude with way ahead.

Introduction:

- The Indian space program was established with a very different goal in mind. Unlike its western counterparts where the space industry began and evolved due to military expenditure during the Cold War, the Indian space program mainly focused on achieving self-reliance that would help solve the problems of the nation.
- The Indian space program dates back to 1969, when the Indian Space Research Organization (ISRO) was established. Since then, the Indian space program has come a long way. In 2018, the 100th satellite launched helping India establish itself as one of the fast-rising space nations around the world. Still, India's share of the global \$400 billion space market is less than 0.01%. The private space sector has recently started to take shape in India with some of these companies influencing the global space industry.

**Body:**

- The Department of Space (DoS) in India has registered its second commercial entity, **NewSpace India Ltd. (NSIL), in Bengaluru**. DoS already has a commercial venture, **Antrix Corporation Limited**, which was set up in September 1992 to market the products and services of the Indian Space Research Organisation (ISRO).

Mandate of NSIL:

- Newspace India will market space-based products in the country and abroad.
- It aims to commercially exploit the research and development work of the space agency.
- This includes the small satellite programme, the small satellite launch vehicle (SSLV) programme and the polar satellite launch vehicle (PSLV) and lithium-ion cells etc.
- The entity will be a link between ISRO and the industry and help transfer its technologies to private firms for a fee.
- Newspace India will play a different role since Antrix is solely involved in commercial launches of foreign satellites

Significance of Space startups in Indian scenario:

- There are over a thousand space startups all around the world. India's share of these startups remains less than 1%.
- Indian Space Research Organization (ISRO) is increasingly looking for collaboration with the private sector to increase the number of satellites, explore more research-related opportunity areas and to overcome manpower and budgetary constraints.
- ISRO plans to double the number of satellites launched in the next two years and this would necessitate active involvement and participation of the private sector.
- The current manpower of ISRO is less to meet the increasing demands of satellite launches and the heightened expectations that will arise, and hence the involvement of the emerging private sector becomes crucial.
- In the past two decades, through a combination of technology, policy, and will, governments of more than a dozen countries have successfully transferred many space operations to the private sector and it has yielded good results.
- Collaboration with private players is vital for capacity building, cost reduction and getting an extra mile cutting-edge advantage.
- Since ISRO is making a lot of satellites, and a large chunk of its manpower is involved in manufacturing and launch vehicles, so active involvement of the private sector would also mean that ISRO can devote more time to core research.
- With the introduction of the **new Space Activities Bill**, the Indian government has also opened up opportunities for the private sector and made it much easier for them to sustain and thrive.
- The principal propellant of growth in the private space sector would be the medium and small industries because the big industries focus mainly on system integration.
- With initiatives such as Make in India, Digital India, and Startup India, the government has been able to push the startup sector. What is now needed is to frame a program exclusively for space startups that will benefit the space entrepreneurs and help them make an impact in the space industry.

Potential advantages of rising Space industry:

- Adding an edge to India's foreign policy as our space capabilities can be a part of our initiatives to foster new relationships,
- Avoiding the outflow of tax-payer's money to foreign hands from where we procure turnkey products and services,
- Creating more opportunities for foreign direct investments (FDI), as well as new jobs for highly-skilled labour market,
- Empowering India's defence system by equipping it with space technology, and allowing armed forces to procure defence products and services indigenously, and
- Reversing the brain-drain from India.

Conclusion:

- To thrive in this throttling competition and be head-and-shoulders above others in the same segment, innovative research has to be fostered and dynamic players have to be brought onboard. This is not possible without engagement, collaboration, partnership and devolving some of the roles to the private industry



Extra Information: Indian space SME industry is valued at just \$48 million but is expected to expand at a quick pace. Some of the **space-related Indian startups** that are already making a mark in the market are:

- A small satellite developer **Dhruva Space** joined hands with a German company called the Berlin Space Technologies last year to establish India's first factory to manufacture satellites for non-telecom commercial applications such as disaster management, vehicle and flight tracking, predictive analytics and imaging. It aims to manufacture 10 to 12 satellites every year.
- **Team Indus**, an aerospace startup, won \$1 million prize in the Google Lunar XPrize competition in the 'Landing Milestone' category. It was the only Indian team to compete in the competition where different teams had to land a robot on the moon by December 2016.
- **Antara Space** signed a satellite procurement agreement with the UK's Dauria Aerospace in July 2014 to develop two small geostationary communication satellites for broadcasters.
- **Earth2Orbit** is India's first private space startup that offers earth observation products and launch facilitation services to different companies.
- With the launch of ExseedSAT 1, **Exseed Space** has become the first Indian privately-funded startup to successfully send a satellite into space.

Q) What are space debris? How are they a threat to space operations? Discuss the concerns associated with Mission Shakti with respect to space debris. How far do you think the concerns are just? Comment. (250 words)

Reference

Why this question:

The article discusses in detail the significance of mission shakti to India. The question thus is to analyse the concerns of space debris and the issues surrounding and questioning the utility of space mission shakti.

Key demand of the question:

Answer must provide for an analysis of Mission Shakti, its effects on space debris and weigh the merits and demerits of the mission.

Directive word:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

In a few introductory lines highlight the context of the question.

Body:

- In brief discuss what you understand by Space debris? – Initially, the term space debris referred to the natural debris found in the solar system: asteroids, comets, and meteoroids. However, with the 1979 beginning of the NASA Orbital Debris Program, the term also refers to the debris from the mass of defunct, artificially created objects in space, especially Earth orbit.
- Discuss why are they harmful?
- Salient features of mission shakti.
- What is the debate of space debris and mission shakti?
- How are space debris a threat to human life?
- What needs to be done?

Conclusion:

Conclude with way forward.

Introduction:

- India recently announced that it had carried out a successful anti-satellite missile test (ASAT), Mission Shakti. ASAT is the technological capability to hit and destroy satellites in space through missiles launched from the ground.

Body:

Space Debris:

- Space debris is a term for the mass of defunct, artificially created objects in space, most notably in Earth orbit, such as old satellites and spent rocket stages.
- It includes the fragments from their disintegration, erosion and collisions.
- Sources of space debris are dead spacecrafts, lost equipment, boosters, weapons etc.



- Space debris has become a pressing issue, with objects in orbit flying out of control, posing a risk to satellites and to astronauts.
- The drive to keep space debris at bay is growing as more satellites are launched.
- According to the European Space Agency, there were an estimated 7,50,000 objects of size one cm or above in space.

Threats posed by Space Debris:

- Space junk is a threat to active satellites, unmanned spacecrafts and spaceships.
- International space station: Although the ISS uses Whipple shielding to protect itself from minor debris, portions (notably its solar panels) cannot be protected easily.
- There is also the risk, known as the Kessler Syndrome or Kessler Effect, where one piece of debris breaks off and hits another so that it becomes a cascade, which could end up polluting an entire orbit for satellites.
- Earth: Although most debris burns up in the atmosphere, larger objects can reach the ground intact. According to NASA, an average of one catalogued piece of debris has fallen back to Earth each day for the past 50 years

Concerns associated with Mission Shakti with respect to space debris:

- Mission Shakti's technology is aimed at destroying, if necessary, satellites owned by enemy countries.
- A satellite that is destroyed by a missile disintegrates into small pieces, and adds to the space debris.
- g. China carried out its first anti-satellite missile test in 2007, destroying its Fengyun-1C weather satellite. This created more than 2,300 large pieces of space debris, and an estimated 1.5 lakh pieces of objects that were larger than 1 cm in size.
- Each of them could render a satellite useless on collision, and the debris damaged a functional Russian satellite.
- But more than that, destroying space infrastructure like satellites is also taboo in the international community, at least till now.
- Almost every country agrees that space must not be used for wars and has spoken against weaponisation of space.

However, Mission Shakti is justified as:

- With large number of crucial applications being satellite-based, satellites are extremely critical infrastructure of any country these days.
- Some of them include navigation systems, communication networks, banking systems, weather forecasting, disaster management, and military applications.
- Destroying a satellite would render these applications useless.
- It can thus cripple enemy infrastructure without causing any threat to human lives.
- None of the international treaty or agreements technically prohibits the kind of test that India presently carried.
- By government statement, the Indian test was done in the lower atmosphere to ensure that there was no space debris.
- So whatever debris that is generated will decay and fall back on to the earth within weeks.

Way forward:

- The issues constraining the process of tackling space debris are financing and international cooperation.
- The question of who pays for these 'garbage collection' missions is also a tricky one.
- All these issues need resolution but countries need to act immediately to avoid any huge catastrophe due to inaction.
- Recently, a space mission named **Remove Debris** was launched to demonstrate various space debris removal technologies.
- Methods like **Net capture, Harpoon Capture, Vision-based navigation, De-orbiting process** can be used.
- **Self De-Orbiting Mechanism**, which can allow satellite to automatically go out of Earth's orbit, after it is of no use.
- **Supersonic Laser**, which can be use by placing it on Earth only, but it, will burn the space trash. These lasers have been put up in Australia.
- **Space Magnet**, which can attract small pieces of debris and throw it out from Earth's orbit.
- **Space Bombs**, which can burn the space junk, without harming any other satellites.



Q) Discuss the diverse applications of Biotechnology in India and analyse its growth potential with reference to initiatives taken by the government in this direction. (250 words)

Reference

Why this question:

The question is to assess the Biotechnology sector in India, its potential growth and initiatives taken by the government in this direction.

Key demand of the question:

The answer is straightforward and it must narrate upon the biotechnology sector of the country, its potential and significance.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer

Introduction:

write a few introductory lines on what you understand by Biotechnology.

Body:

Answers must discuss the following aspects :

- Quote some facts of Biotechnology sector in India – Indian biotechnology sector has crossed the \$ 3 billion milestones and is growing at the rate of more than 30% over the last few years.
- Potential – India could even achieve the target of attaining \$20 billion by 2020.
- Discuss the notable trends of the sector in India.
- Explain the benefits of the sector in terms of everyday application in fields of science, Industry, agriculture, animal husbandry, human health etc.
- Conclude with pros and cons and how the pros should outweigh the cons of the technology.

Conclusion –

Conclude with significance of the Industry on economic and social fronts.

Introduction:

- Fifteen years after it rose and went limp, the biotech sector, globally, as well as in India has seen a bull run of sorts. In January this year, some 10 healthcare companies went public on the NASDAQ. Meanwhile, India has become the world's 12th biggest biotechnology economy having the second highest number of USFDA-approved plants. Biotechnology will help developing countries accomplish things that they could never do.

Body:

Indian Biotechnology Scenario:

- In India, the world's 12th biggest biotechnology economy and having the second highest number of US Food and Drugs Administration (USFDA) – approved plants, the industry is not only excited at the revival in the US but also about its domestic prospects.
- The Indian bioeconomy grew to \$4.3 billion at the end of the 2013 financial year, up from \$530 million in 2003, according to BioSpectrum, a widely-read trade publication in India.
- Though concentrated in Hyderabad and Bengaluru, there are units sprouting across the country; currently some 350 companies are in operation.
- The bio-pharmaceutical sector, which includes vaccines, medical devices and stem cells, is the main driver of India's biotechnology growth, generating close to 63 per cent of the industry's total revenue in 2013.

Biotechnology has the following relevance in India:

- **Applications of Biotechnology in Medicine**
 - Biotechnology techniques are used in medicine for diagnosis and treating different diseases. It gives opportunities for the people to protect themselves from dangerous diseases.
 - The field of Biotechnology, genetic engineering has introduced techniques like **gene therapy, recombinant DNA technology and polymerase chain reaction** which use genes and DNA molecules to diagnose diseases and insert new and healthy genes in the body which replace the damaged cells
 - Genetic modification in mosquitoes can solve the problems of epidemic diseases such as dengue and malaria
 - Artificial insemination is the artificial introduction of semen into the reproductive tract of a female animal. It is used extensively in breeding animals, such as sheep and cattle



- Medical researchers believe that stem cell therapy has the potential to dramatically change the treatment of human disease. A number of adult stem cell therapies already exist, particularly bone marrow transplants that are used to treat leukaemia.
- Stem cell transplantation was first used in the treatment of blood disorders and it was a breakthrough. Conventionally known as bone marrow transplantation, the stem cells responsible for production of the blood cells reside in the bone marrow
- **Applications of Biotechnology in Agriculture**
 - Biotechnology has played major role in agriculture by altering genes, studying and cloning various crops in order to provide better quality products of foods ultimately improving our lives.
 - Hybrid Seeds, Artificial Seeds, Photosynthesis improver, Stress resistant crops and plants, Bio-fertilisers, Bio-pesticides are some of the potential applications.
 - Potential advantages that biotechnology can confer across a wide range of agricultural applications are in areas such as livestock management, storage of agricultural products and sustaining current crop yields, while reducing the use of fertilizers, herbicides and pesticides.
 - Biotechnology offers a very promising alternative to synthetic foods and an improvement on conventional plant-breeding technologies. Combined with other advanced agricultural technologies, it offers an exciting and environmentally responsible way to meet consumer demand for sustainable agriculture.
- **Animal husbandry:**
 - The application of biotechnology in this area, in increasing production efficiency through manipulation and control of physiological systems and improving the health and well-being of animals, assumes great significance.
 - Embryo transplantation, used with cattle, goats, pigs, and sheep, aims to increase the number of offspring from a quality female.
 - Cloning embryos to artificially produce genetic duplicates of an animal has also become possible.
 - Direct manipulation and alteration of an animal's genetic material— genetic engineering—has the potential to produce even more drastic changes in animal breeding. It is believed that genetically altered pigs may one day be able to provide compatible organs for emergency transplantation (xenotransplantation) into humans.
- **Application of Biotechnology in Food Processing**
 - Biotechnology has a major application in the food sector.
 - Bread, cheese, wine, beer, yogurt, and vinegar are all made by culturing microorganisms and are really the oldest products of biotechnology.
 - It helps in improving the edibility, texture, and storage of the food; in preventing the attack of the food, mainly dairy, by the virus like bacteriophage.
 - Biotechnologists are also developing tests that will allow the detection of food-contaminating microorganisms and the toxins they produce, which may be present only in minute quantities.
 - Biotechnology also has applications in the detection of mutagens (substances that cause genetic mutations) in individual food products.
 - GM crops which have been approved for use in food items in select countries include corn, maize, soya, tomato, potato and papaya.
 - Latest innovations in biotechnology that fortify major staples with micro nutrients like vitamin A, zinc and iron can be game changers for hunger problem in India.
- **Environment:**
 - Biotechnology can be used to tackle environmental issues like deforestation and air pollution
 - Biotechnology can help in finding out the level of Particulate Matter 2.5 in the air,
 - Biotechnology is already providing a clean and renewable alternative to traditional fossil fuels, the burning of which contributes to global warming.
 - The benefit of environmental biotechnology helps us to avoid the use of hazardous pollutants and wastes that affect the natural resources and the environment.
 - Biosensors, which combine a biological component (such as an enzyme) with various electronic components to trigger a circuit when a particular type of chemical is detected. Biosensors are capable of detecting extremely low levels of proteins, hormones, pollutants, gases, and other molecules.



Government initiatives to boost the sector:

- The Ministry of Science and Technology, Government of India and RIKEN, Japan's largest research organisation have signed memorandums of understanding (MoU) to launch joint research programs in the fields of biology, life sciences and material sciences.
- UK Trade and Investment (UKTI) and the Association of Biotech Led Enterprises (ABLE) have signed a MoU to encourage and develop collaborative opportunities between Indian life sciences organisations and the UK.
- The Drugs Controller General of India has approved Biocon Ltd to market its biosimilar 'Trastuzumab' developed jointly with the US drug-maker Mylan, for treating breast cancer. "This is a major milestone for both partners as it is the world's first biosimilar trastuzumab to be accorded regulatory approval," said Ms Kiran Mazumdar Shaw, Chairperson and Managing Director, Biocon.
- The Government of India plans to set up National Institute of Biotic Stress Management for addressing plant protection issues will be established at Raipur, Chhattisgarh.

Conclusion:

- Every new drug discovery or drug approval not only draws cheers from millions of victims of debilitating diseases but also adds value to biotechnology companies. In a complex play of scientific progress and market forces, the biotechnology industry is recording growth that can rival the information technology industry boom of the 1990s. India with its young workforce and a potential market for the end-products can look out for a bright future in the biotechnology sector.

Q) Evaluate the contributions of Nano technology to the health Industry. (250 words)

Reference

Why this question:

The article highlights a research at Indian Institute of Technology-Mandi about a multifunctional gold nanostructure that has been developed and can be used in cancer imaging and therapy.

Key demand of the question:

The answer must discuss in detail the benefit that Nano technology has brought with it for the health industry.

Directive word:

Evaluate – When you are asked to evaluate, you have to pass a sound judgement about the truth of the given statement in the question or the topic based on evidences. You have to appraise the worth of the statement in question. There is scope for forming a personal opinion here.

Structure of the answer

Introduction:

write a few introductory lines on role of technology in Health Industry.

Body:

Answers to the question is straightforward, one has to suggest the benefits brought in by the Nano technology, use suitable examples to justify and conclude with significant breakthrough that the technology has got for the healthcare industry.

Conclusion –

Conclude with significance.

Introduction:

- Nanotechnology is the science of materials at the molecular or subatomic level. It involves manipulation of particles smaller than 100 nanometres (one nanometre is one-billionth of a metre) and the technology involves developing materials or devices within that size — invisible to the human eye and often many hundred times thinner than the width of human hair. The physics and chemistry of materials are radically different when reduced to the nanoscale; they have different strengths, conductivity and reactivity, and exploiting this could revolutionise medicine.

Body:

The contributions of Nanotechnology to the health Industry:

- **Diagnostics and screening:**
 - There is an urgent need in the developing world for better disease diagnosis, and nanotechnology offers a multitude of options for detecting disease.
 - Example: Fluorescent quantum dots could improve malaria diagnosis by targeting the blood cell's inner membrane.



- Similarly, carbon nanotubes, and other nanoparticles such as nanowires, have been used as biosensors to detect diseases such as HIV and cancer. Cancer biosensors can be made, for instance, by attaching nucleic acid probes to the ends of nanowires.
- **Drug delivery:**
 - Nanotechnology could also revolutionise drug delivery by overcoming challenges such as how to sustain the release of drugs in the body and improving bioavailability — the amount of active ingredient per dose.
 - Some drugs can now be delivered through ‘nanovehicles’.
 - For example liposomes, which can deliver the drug payload by fusing with cell membranes, have been used to encapsulate HIV drugs such as stavudine and zidovudine in vehicles ranging from 120 to 200 nanometres in size.
 - Nanocapsules are pods that encapsulate drugs, which ensures the drugs are released more slowly and steadily in the body
- **Health monitoring:**
 - Nanotubes and nanoparticles can be used as glucose, carbon dioxide and cholesterol sensors and for in-situ monitoring of homeostasis, the process by which the body maintains metabolic equilibrium.
 - In developing nations, the use of nanotechnology is also being explored in the fight against infectious diseases such as HIV and TB.
 - Nanoparticles could also be the basis for delivering an aerosol TB vaccine.
 - Needle-free, and therefore not requiring trained personnel to administer it, the vaccine is stable at room temperatures — important in rural areas that lack a reliable cold chain.
- **Vaccines:**
 - Nanotechnology could herald a new era in immunisation by providing alternatives to injectable vaccines for diseases that affect the poor.
 - Injectable vaccines need to be administered by healthcare professionals, who may be scarce in developing countries, particularly in rural areas.
 - Vaccines also need reliable refrigeration along the delivery chain. Scientists are working on an aerosol TB vaccine.
 - They are also investigating a nanotechnology-based skin patch against West Nile Virus and Chikungunya virus.
- **Tissue growth and regenerative medicine:**
 - Researches in tissue regenerative medicine aims in developing implants or scaffolds capable for delivering drugs, growth factors, hormones for tissue repair.
 - They provide sustained delivery of bioactive molecules to support survival, infiltration and proliferation of cells for tissue engineering.
 - The expected outcome of such treatment modality is to have complete tissue replacement and functional recovery.

Conclusion:

- Nanotechnology offers the ability to build large numbers of products that are incredibly powerful. Nanomedicines and nanodevices are in their early stages of development. The development processes are heavily intertwined with biotechnology and information technology, making its scope very wide. Nanotechnology based products are capable of overcoming the limitations of traditional methods. But, the major challenges are yet to prevail over its toxicity, environmental hazards, production cost and accessibility to the un-reachable at far-off areas.

Q) What do you understand by cloud computing ? List down the Advantages and limitations of Cloud Computing. (250 words)

Reference

why this question:

The question is based on the concept of cloud computing and its application on daily life.

Key demand of the question:

Answer is straightforward and is about discussing the concept of cloud computing, one must discuss in detail What Is Cloud Computing? What are the benefits and applications of it.



Structure of the answer:

Introduction:

In a few introductory lines highlight the context of the question.

Body:

- In brief discuss what is cloud computing? – Cloud computing is the delivery of different services through the Internet. These resources include tools and applications like data storage, servers, databases, networking, and software.
- Cloud computing is named as such because the information being accessed is found remotely in the cloud or a virtual space. Companies that provide cloud services enable users to store files and applications on remote servers and then access all the data via the Internet. This means the user is not required to be in a specific place to gain access to it, allowing the user to work remotely.
- Discuss types of cloud computing.
- Give out – what are the key takeaways of cloud computing, merits and disadvantages if any.

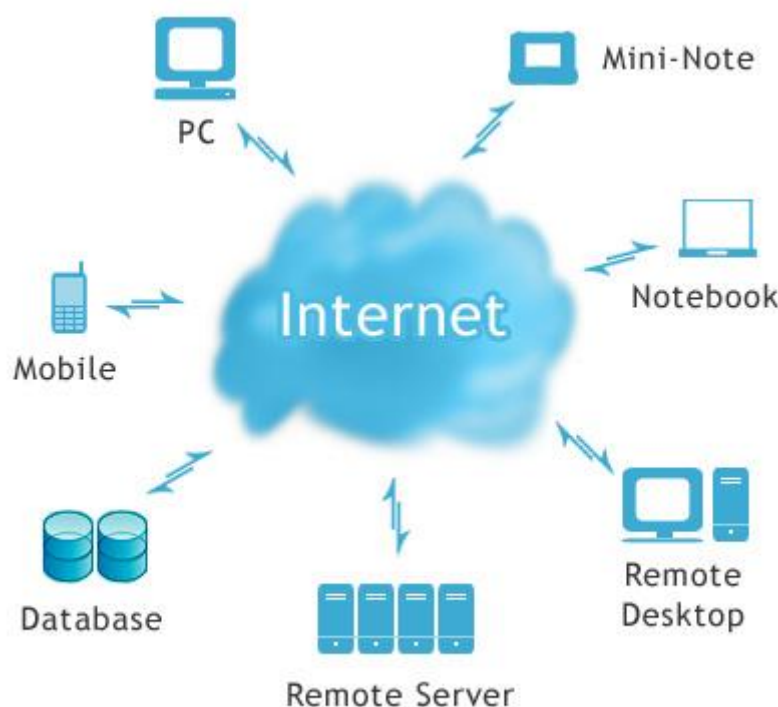
Conclusion:

Conclude with way forward.

Introduction:

- Cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet (“the cloud”) to offer faster innovation, flexible resources, and economies of scale.

Body:



In general, there are three cloud computing characteristics that are common among all cloud-computing vendors:

- The back-end of the application (especially hardware) is completely managed by a cloud vendor.
- A user only pays for services used (memory, processing time and bandwidth, etc.).
- Services are scalable

It is common to categorize cloud computing services as infrastructure as a service (IaaS), platform as a service (PaaS) or software as a service (SaaS)

Advantages:

- **Seamless Connectivity:** Cloud-based software offers companies from all sectors a number of benefits, including the ability to use software from any device either via a native app or a browser. As a result, users can carry their files and settings over to other devices in a completely seamless manner.
- **Higher Accessibility:** Cloud computing is far more than just accessing files on multiple devices. Thanks to cloud computing services, users can check their email on any computer and even store files using services such as Dropbox and Google Drive.



- **Improved Disaster Recovery:** Cloud computing services also make it possible for users to back up their music, files, and photos, ensuring those files are immediately available in the event of a hard drive crash.
- **Cost-Saving:** It also offers big businesses huge cost-saving potential. Before the cloud became a viable alternative, companies were required to purchase, construct, and maintain costly information management technology and infrastructure.
- Companies can swap costly server centers and IT departments for fast Internet connections, where employees interact with the cloud online to complete their tasks.
- The cloud structure allows individuals to save storage space on their desktops or laptops.
- **Increased Collaboration and flexibility:** It also lets users upgrade software more quickly because software companies can offer their products via the web rather than through more traditional, tangible methods involving discs or flash drives.
- For example, Adobe customers can access applications in its Creative Suite through an Internet-based subscription. This allows users to download new versions and fixes to their programs easily.
- **Environmentally friendly:** Cloud computing reduces a company's carbon footprint by minimizing energy consumption and carbon emissions by more than 30%. For small businesses, the decreased energy usage can reach up to 90% = A huge money saver.

Limitations:

- With all of the speed, efficiencies, and innovations that come with cloud computing, there are naturally risks.
- **Security** has always been a big concern with the cloud especially when it comes to sensitive medical records and financial information.
- While regulations force cloud computing services to shore up their security and compliance measures, it remains an ongoing issue. Encryption protects vital information, but if that encryption key is lost, the data disappears.
- Servers maintained by cloud computing companies may fall victim to natural disasters, internal bugs, and power outages, too.
- The geographical reach of cloud computing cuts both ways: A blackout in California could paralyze users in New York, and a firm in Texas could lose its data if something causes its Maine-based provider to crash.
- As with any technology, there is a learning curve for both employees and managers. But with many individuals accessing and manipulating information through single portal, inadvertent mistakes can transfer across an entire system.
- **Maintenance costs:** While the upfront or capital cost for the cloud-based server is very low compared to traditional hosting, the cloud server requires the same amount to be paid each month to maintain both servers as well as data.
- **Internet connectivity:** For cloud-based services, consistent internet connection is important because if any one of the cloud-based service providers loses connectivity, then the company will be out of business until that internet connection returns.
- A common argument from critics is that cloud computing cannot succeed because it means that organizations must **lose control of their data**, such as an email provider that stores data in multiple locations around the world. A large regulated company, like a bank, might be required to store data in the United States.

Conclusion:

- Cloud computing proponents point to it being a new paradigm in software development, where smaller organizations have access to processing power, storage and business processes that were once only available to large enterprises. It has immense potential in the field of E-governance, Telecom, Banking, Manufacturing and other sectors.

Q) What do you understand by Biotherapeutic medicines ? Elaborate on the need for guidelines to regulate the accessibility and affordability of this new class of medicines. (250 words)

The hindu

Why this question:

The article discusses in detail upon the need for revision of guidelines for Biotherapeutic medicines.

Key demand of the question:

The answer must discuss in detail what are Biotherapeutic medicines, why is there a need to revise the guidelines for the same and what needs to be done.

**Directive word:**

Elaborate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:**Introduction:**

In a few introductory lines explain what are Biotherapeutic medicines.

Body:

- Biotherapeutic medicines, also known as biologics, are produced through biological processes and differ from the older generation small-molecule medicines that are derived through chemical synthesis.
- What are the issues surrounding it? – pricing, manufacturing, access, affordability, regulations etc.
- Discuss what needs to be done?
- Explain the Indian industry scenario.

Conclusion:

Conclude with what should be the way forward.

Introduction:

- Biotherapeutic Medicines (also known as biologics) are medicines whose active ingredients are or are derived from proteins (such as growth hormone, insulin, antibodies) and other substances produced by living organisms (such as cells, viruses and bacteria).
- They are larger and more complex than chemically-synthesized medicines and their characteristics and properties are typically dependent on the manufacturing process itself. Biotherapeutic medicines are an integral and valuable part of modern medicine for the treatment and prevention of serious illnesses and diseases.

Body:**Importance of Biotherapeutic medicines:**

- **Lives touched:**
 - Biotherapeutic medicines benefit more than 350 million patients worldwide, treating widespread diseases such as cancer and diabetes, as well as rare illnesses.
 - Being similar in structure to molecules naturally-produced in the human body, biotherapeutic medicines have great therapeutic impact in many disease areas and can additionally serve to diagnose other diseases
- **Tangible benefits:**
 - Many patients are leading healthier lives as a result of biotherapeutic medicines, often without realizing the source of these products.
- **Biotherapeutic medicines & cancer:**
 - Major strides in fighting cancer successfully go hand in hand with improved diagnostics, treatments and prevention methods. Biotherapeutic medicines play a role in the discovery and development of
 - Today, biomarkers help in predicting the risk of cancer, diagnosing it, and indicating a potential effective course of treatment.
- **Biotherapeutic medicines & autoimmune diseases:**
 - If left untreated autoimmune diseases such as Crohn's disease and rheumatoid arthritis can lead to early mortality.
 - Biotherapeutic medicines have proved successful and have had a highly positive impact in the treatment of these diseases.

The need for guidelines to regulate the accessibility and affordability of this new class of medicines:

- Both accessibility and affordability of this new class of medicines in developing countries is abysmally poor, owing largely to their high prices.
- Although a lot of research and development efforts are focused on innovative biotherapeutic products, the high cost and restricted market availability has limited their use.
- Similar biotherapeutic products (SBPs) are "similar" but not identical versions of their innovative biotherapeutic medicine of reference. SBPs are the analogous version of generic medicines in biotherapeutics.
- Whereas producing generic versions of off-patent chemically-synthesized medicines is relatively easy, producing an SBP is far more complicated due to the complex molecular structure and the unique manufacturing process required for biotherapeutic medicines.



- SBPs require distinct regulatory standards than those applied to generic medicines.
- SBP standards require thorough analytical characterization and quality studies as well as abbreviated pre-clinical and clinical development programs to show high similarity to the reference innovative biopharmaceutical medicine in terms of quality, safety and efficacy.
- Civil Society groups claim that even though a Resolution of the World Health Assembly in 2014 mandates the Director General to convene the WHO expert committee on biological standardization to update the 2009 guidelines, till date, the secretariat has neither updated the SBP guidelines nor has the WHO given any scientific reasons for the decision.
- The secrecy of the scientific reasons for insisting on comparative clinical trials for the approval of SBP.
- Lack of public consultations to review the scientific evidence with respect to the need for comparative clinical trials, among other things.

Conclusion:

- As the patents of some biopharmaceuticals have expired, more biosimilars or SBPs are being produced. Like generic medicines, biosimilars could help to increase access to treatment in lower-resourced countries and provide a solution to escalating health costs in high-income countries. Thus, there is a need to update the guidelines.

Q) What is gene editing, should it be allowed ? Give your opinion while you weigh the associated pros and cons. (250 words)

Why this question:

The question is to evaluate the pros and cons of the concept of gene editing.

Demand of the question:

The answer must explain the concept of gene editing and evaluate the ethical angle involved, one must assess the merits and demerits of the same.

Structure of the answer:

The answer to the question must have the following parts:

- Gene editing or genome editing, involves the insertion, deletion, or replacement of DNA (deoxyribonucleic acid) in a gene.
- Discuss the pros and cons; pros – use in cure of cancer, genetic diseases, drug research, Agriculture- pest resilient crops etc.
- What are the disadvantages associated? – ethical aspect, scope to be used in bio weapons, unknown diseases etc.
- Then move on to discuss whether it should be allowed? Opine that should be encouraged to enhance the advancements in field of science and improve the standard of living of people etc.

Conclusion:

Conclude with what should be the way ahead.

Introduction:

- Gene Editing is a type of genetic engineering in which DNA is inserted, deleted, modified or replaced in the genome of a living organism. Unlike early genetic engineering techniques that randomly insert genetic material into a host genome, genome editing targets the insertions to site specific locations.
- **CRISPRs** (clustered regularly interspaced short palindromic repeats) are sections of DNA, while **CAS-9** (CRISPR-associated protein 9) is an enzyme. Often described as “a pair of molecular scissors,” CRISPR is widely considered the most precise, most cost-effective and quickest way to edit genes.

Body:

Pros:

- Most uses of genome editing have been in scientific research –for example to investigate models of human disease.
- Genome editing has the potential to alter any DNA sequence, whether in a bacterium, plant, animal or human being.
- It is a powerful tool that can reshape the way society deals many issues of healthcare, food scarcity and the environment.
- Crops and livestock (e.g. increasing yield, introducing resistance to disease and pests, tolerance of different environmental conditions).
- Industrial biotechnology (e.g. developing ‘third generation’ biofuels and producing chemicals, materials and pharmaceuticals).



- Biomedicine (e.g. pharmaceutical development, xenotransplantation, gene and cell-based therapies, control of insect-borne diseases).
- Reproduction (e.g. preventing the inheritance of a disease trait).
- Engineering mosquitoes to control malaria and dengue.
- It can help fight against blood-related disorders such as haemophilia, sickle cell anaemia, and Beta-Thalassemia.
- All such applications together can drive India's economic growth over the next decade to new heights.

Cons:

- Study by Stanford University, U.S., found that the CRISPR-Cas9 system introduces unexpected off-target (outside of the intended editing sites) effects in mice. The fear that the CRISPR system is being prematurely rushed for clinical use lingers. Three recent reports have exacerbated this fear even further.
- Studies highlighted that CRISPR-Cas9-edited cells might trigger cancer.
- **P53 protein:**
 - CRISPR-Cas9 system induced activation of a protein called P53. This P53 protein acts like a gatekeeper or guardian in the cells to keep them healthy and prevents them (the cells) from turning cancerous. In many cancers, cells lose their ability to repair deleterious genetic changes due to an impaired P53 function.
 - In cells where editing is adequate, the cell's P53 protein may be dysfunctional. Therefore, a functional pP53 protein is good for the cells to be healthy but makes the Cas9-mediated editing process less effective.
- The impending danger of **mosaicism**, in which some cells inherit the target mutation, while others don't.
- Scientists are far from understanding **how exactly individual genes influence phenotypes**, or the visible traits of people.
- **Every gene likely influences multiple traits**, depending on the **environment it interacts**. This makes it hard to predict the ultimate outcome of an embryo-editing exercise without decades of follow-up.
- Every gene **influences trade-offs**, which scientists barely understand today. **Example:** while protecting against HIV, a deactivated CCR5 gene can also make people more susceptible to West-Nile Fever.
- Editing human embryos to repair disease-causing genes is **far more controversial**.
- **Issue of Designer babies:** The eyes of the mother, the hair of the father, the complexion from the maternal side and a cute little dimple from the paternal is what makes the kid loved by one and all. Designing the babies to look like celebrities might get the kids to thank you later in life but might **loosen the bond** that is supposed to be the significant part of the relationship.
- There are prospects of irreversible harms to the health of future children and generations, to concerns about opening the door to **new forms of social inequality, discrimination, and conflict**.
- Such living experiments are **done in secret**, outside of any formal institution, and apparently without any independent scrutiny or review by the scientific fraternity.
- Bioethicists fear abuse of gene editing, not just by misguided governments hoping to create a '**superior**' race.

The debate about gene editing has been going on for a long time now. Gene editing should be encouraged to enhance the advancements in field of science and improve the standard of living of people E.g.: CRISPR technology is targeting to treat the rare disease caused by mutation of one gene. At the same time a common guidelines need to be developed by international community's which set the guidelines of what risks are acceptable and what are not.

Way Forward:

- India's current regulatory architecture for approving novel treatments is ambiguous and assigns overlapping functions to different governmental bodies. This framework needs to be **restructured to optimize trial approval time while addressing safety requirements**.
- A **two-step model** wherein the **government works with industry and research groups to accelerate clinical research is recommended**. This model consists of a national apex committee working in collaboration with existing institutional ethics committees and independent accreditation agencies.
- It is envisaged that, India will emerge as a significant contributor to the world bioinformatics market and position itself as a global hub for bioinformatics.
- Indian bioinformatics sector has numerous strengths and competitive advantages to make bioinformatics sector a sunrise industry of India.



- With the improvements in the IPR regime, increasing support from the government and continuing efforts of the private sector companies, it is very much likely that India could repeat its IT success story in bioinformatics too.
- Much research on animal models and isolated human cells should be conducted before any full-scale routine application in humans.

Q) Evaluate the provisions of the Intellectual Property Rights (IPR) Policy in India. What are the challenges being faced by it? Suggest measures needed to ensure transparency and enhance protection of the same. (250 words)

[The hindubusinessline](https://www.insightsias.com/the-hindubusinessline)

Why this question:

The article highlights the urgent need to address Intellectual Property (IP) concerns. Over the past year, India took steps to address intellectual property challenges and promote IP protection and enforcement. However, many of the actions have not yet translated into concrete benefits for innovators and creators, and long-standing deficiencies persist. India remains one of the world's most challenging major economies with respect to protection and enforcement of IP.

Key demand of the question:

The answer must discuss in detail the salient features of the current IPR policy of India and what are the challenges it faces and what measures are required to take it further.

Directive word:

Evaluate – When you are asked to evaluate, you have to pass a sound judgement about the truth of the given statement in the question or the topic based on evidences. You have to appraise the worth of the statement in question. There is scope for forming a personal opinion here.

Structure of the answer

Introduction:

write a few introductory lines on the importance of a robust IPR policy.

Body:

- Answer should have the following dimensions covered:
- Discuss what is an IPR policy? What are the salient features of India's IPR regime?
- Explain the specific issues associated, Why India is lagging behind?
- What needs to be done?
- Way forward.

Conclusion –

Conclude with significance and what should be the way forward.

Introduction:

- Intellectual Property Rights (IPRs) are legal rights, which result from intellectual invention, innovation and discovery in the industrial, scientific, literary and artistic fields. These rights entitle an individual or group to the moral and economic rights of creators in their creation.
- The National IPR Policy (2016) is a vision document that aims to create and exploit synergies between all forms of intellectual property (IP), concerned statutes and agencies. It sets in place an institutional mechanism for implementation, monitoring and review. It aims to incorporate and adapt global best practices to the Indian scenario.

Body:

Seven objectives of IPR Policy:

- IPR Awareness: To create public awareness about the economic, social and cultural benefits of IPRs among all sections of society.
- Generation of IPRs: To stimulate the generation of IPRs.
- Legal and Legislative Framework: To have strong and effective IPR laws, which balance the interests of rights owners with larger public interest.
- Administration and Management: To modernize and strengthen service-oriented IPR administration.
- Commercialization of IPRs: Get value for IPRs through commercialization.
- Enforcement and Adjudication: To strengthen the enforcement and adjudicatory mechanisms for combating IPR infringements.
- Human Capital Development: To strengthen and expand human resources, institutions and capacities for teaching, training, research and skill building in IPRs.



Important highlights of National Intellectual Property Rights (IPR) Policy

- The Policy aims to push IPRs as a **marketable financial asset**, promote innovation and entrepreneurship, while protecting public interest.
- In order to have strong and effective IPR laws, steps would be taken — including review of existing IP laws — to update and improve them or to remove anomalies and inconsistencies.
- The policy is **entirely compliant with the WTO's agreement on TRIPS**.
- **Special thrust on awareness generation and effective enforcement of IPRs**, besides encouragement of IP commercialisation through various incentives.
- India will engage constructively in the negotiation of international treaties and agreements in consultation with stakeholders.
- The government will examine accession to some multilateral treaties which are in India's interest, and become a signatory to those treaties which India has de facto implemented to enable it to participate in their decision making process, the policy said.
- It suggests making the department of industrial policy and promotion (DIPP) the nodal agency for all IPR issues. Copyrights related issues will also come under DIPP's ambit from that of the Human Resource Development (HRD) Ministry.
- Films, music, industrial drawings will be all covered by copyright.
- The Policy also seeks to **facilitate domestic IPR filings**, for the entire value chain from IPR generation to commercialization. It aims to promote research and development through tax benefits.

Issues with the current policy:

- Policy is aimed at a **gold rush towards IPR**. A blind rush towards IP could be a **deterrent to innovation itself by restricting knowledge flow**.
- Policy recommends scientist and professors to convert all their discoveries into IP which in turn has the potential to curb the free flow of knowledge.
- IPR policy is driven by the **agenda of IP maximalism**, where IP owners' rights will be maximised at the cost of public interest. This (policy) will influence courts and judges who might consider rights of patentees above that on common man in certain cases.
- Connection between patenting and application of patented knowledge is yet to be established. Hence, patenting and not applying the new invention could deter progress.
- Policy recommends **criminalization of unauthorised copying of movies** — which is just a civil wrong.
- Not understanding the modes of creativity and sharing in "**shadow economy**", the policy leans towards **superimposition of formal IP framework**.
- While IP could accelerate innovation in certain technologies it in turn impedes in others. Policy recommends scientist and professors to convert all their discoveries.
- According to USTR, Patent applicants face costly and time-consuming patent opposition hurdles, long timelines for receiving patents, and excessive reporting requirements.

Measures needed:

- Fostering an environment where innovation flourishes and a knowledge economy is built, is the key idea. Hence, the policy should have a balance.
- It should encourage patenting and at the same time ensure that patentability of a product/process does not deter further innovation and progress.
- Intellectual Property must not be about patents on paper but dearth of application in reality.
- The organisations such as CSIR and others must be encouraged to work upon socially useful applications of their patents.
- Support for innovation has to be accompanied with instruments that guard local companies against the misuse of market power, coercive bargaining and aggressive acquisition strategies.
- India needs to spread awareness on IPR in public and for its traditional industries to enable fair monetisation of IP Rights.
- It needs to safeguard its patents, copyrights and traditional knowledge by ensuring easy IPR rules.

Q) Explain the role played by robotics and its application to the agriculture sector of the country. What are its future prospects ? How far can Indian agriculture foresee mechanization of agriculture for its growth ? (250 words)

[Reference](#)

**Why this question:**

The article discusses in detail the application and role played by the robotics in the upbringing of Agri sector in India. The paper discusses in detail scope of robotics and mechanization it brings to Agriculture in India.

Key demand of the question:

Answer must discuss the role of robotics and prospect of it in Indian agriculture and mechanization and automation of the same.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:**Introduction:**

In a few introductory lines highlight the context of the question.

Body:

In brief discuss the following aspects:

- Current scenario of agriculture in India in comparison with other countries that have developed agriculture systems like US, Iran etc.
- Discuss how robotics can be applied to agrarian systems? What benefits it has and can bring?
- Explain the specific case of India.
- Discuss the scope and benefits in detail.
- Explain the challenges involved.

Conclusion:

Conclude with way forward.

Introduction:

- Robotics is the branch of technology that deals with the design, construction, operation, structural depositions, manufacture and application of robots.
- Today Robotics is the rapidly growing field and it is continue in research, design, and build new robots that serve various practical purposes. As it has taken drive in various fields is there any possibility that robot can be introduced in the farming.

Body:

The most popular applications of Robots in agriculture appear to fall into four major categories:

- **Crop and Soil Monitoring:** Companies are leveraging sensors and various IoT-based technologies to monitor crop and soil health.
- **Predictive Agricultural Analytics:** Various AI and machine learning tools are being used to predict the optimal time to sow seeds, get alerts on risks from pest attacks, and more.
- **Supply Chain Efficiencies:** Companies are using real-time data analytics on data-streams coming from multiple sources to build an efficient and smart supply chain.
- **Agricultural Robots:** Companies are developing and programming autonomous robots to handle essential agricultural tasks such as harvesting crops at a higher volume and faster pace than human labourers.

Some examples of Agricultural Robots:

- **Green seeker sensor:** This smart machine reads a plant's needs and then applies precisely the amount of fertilizer of herbicides needed. Green Seeker is a machine which uses the sensors to let the plant tell us that what it needs.
- **Robot drone tractors:** A new generation of robot drones is revolutionizing the way we farm, with manufacturing of different robots, e. announcing the first ever robot drone tractor becomes part of the agricultural mainstream. Robot will decide where to plant, when to harvest and how to choose the best route for crisscrossing the farmland.
- **Flying Robots To Spread Fertilizer:** A flying robot monitors the growing condition of the crops over farmlands in Ili, a Kazak autonomous prefecture in Northwest China's Xinjiang Uygur autonomous With camera equipment and an automatic fertilizing system in the front, the robot can fly autonomously and apply fertilizer independently.



- **Fruit Picking Robots:** The research is still in full progress, especially as the robots need to be carefully designed so that they do not bruise the fruit while picking. One solution is the use of suction grippers, used on automated fruit picking machines manufactured, for example, by
- **Robot Cattle Grazing and Automatic Milking:** Is the milking of dairy animals, especially of dairy cattle, without human labour. Automatic milking systems (AMS), also called voluntary milking systems (VMS), were developed in the late 20th century. They are commercially available since the early 1990s.

Scope of farm robots in India:

- Our farm equipment companies and researchers have developed a lot of small and heavy farm equipment for traditional farming needs but some kind of robotic and pneumatic mechanism are required in precision
- If the robots are being used for weed control, that will help to reduce the herbicides usage and the produces will turn into an organic, the same way robots can be used for transplanting the seedlings to avoid intensive
- A few impressive innovative technologies by rural inventors e. electric motors can be operated remotely by cell phones, it's very helpful to farmers in summer time since the power supply is irregular.
- Advanced intelligent machines in farming, Sensors or readers and hand held PDAs are going to be great helpful in computation and accuracy in
- There are lot of hurdles taken in the agriculture sector in all countries but specially in
- Farmers are decreasing in India. Many are leaving the farming profession by telling some repeated common sentences that it is no longer profitable and none want to get losses and it is becoming risky day by day.
- The disadvantages make the youngsters also disinterested in that.

Conclusion:

- Robotics will definitely bring the agriculture revolution. Although the road ahead is not very smooth. We have to calculate the feasibility, sustainability and efficiency meeting the world's food needs.
- However, it would be interesting to see how the farmers, agri-businessmen and the consumers will utilize the power of Robotics and digital-mechanization to shape the future of this industry.

Q) What do you understand by blockchain technology? Evaluate its prospects and challenges. (250 words)

[The hindubusinessline](https://www.insightsias.com/the-hindubusinessline)

Why this question:

Blockchain technology has been in news for quite a time now. The technology is not only revolutionary but also foundational in the sense other systems/ applications can be built on it.

Key demand of the question:

The answer must discuss

Directive word:

Evaluate – When you are asked to evaluate, you have to pass a sound judgement about the truth of the given statement in the question or the topic based on evidences. You have to appraise the worth of the statement in question. There is scope for forming a personal opinion here.

Structure of the answer

Introduction:

write a few introductory lines on the importance of a such remarkable technologies.

Body:

- Answer should have the following dimensions covered:
- Discuss the concept of blockchain Technology -The blockchain is an incorruptible digital ledger of economic transactions that can be programmed to record not just financial transactions but virtually everything of value.
- Enlist the possible applications of blockchain Technology in economic, societal and political spheres.
- Discuss the associated challenges, and how one can overcome it and bring its prospects to use.

Conclusion –

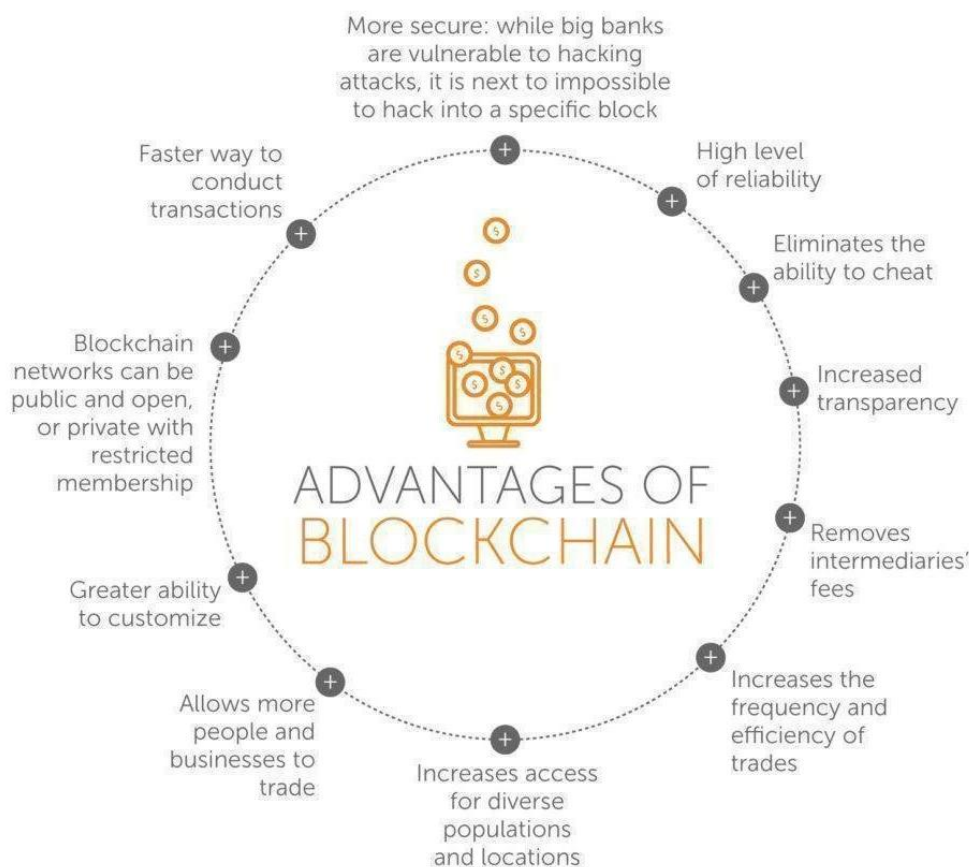
Conclude with significance and what should be the way forward.



Introduction:

- Blockchains are a new data structure that is secure, cryptography-based, and distributed across a network. The technology supports cryptocurrencies such as Bitcoin, and the transfer of any data or digital asset. Anything recorded on them cannot be deleted, and is instantly uploaded to all users on that blockchain. Blockchain is being researched across the banking and financial services industries.

Body:



Prospects:

- Bitcoin is just one of the applications for the technology, whose use is being tested across industries.
- Healthcare, banking, education, agriculture, electricity distribution and land records are sectors that could benefit.
- Blockchain-powered smart contracts, where every piece of information is recorded can enhance ease of doing business.
- It will augment the credibility, accuracy and efficiency of a contract while reducing the risk of frauds, substantially.
- Blockchain could play a crucial part in health insurance claims management by reducing the risk of insurance claim frauds.
- The technology can also be used to prevent the sale of spurious drugs in the country by tracking every step of the supply chain network.
- Artificial Intelligence and Internet of Things (IoT) can gain immensely from blockchain applications.
- In an IoT world, thousands of devices would need to rapidly and seamlessly transact with each other in real time.
- The adoption of blockchain by India's banks could help avert frauds such as the one at Punjab National Bank as the technology updates information across all users simultaneously.
- It could be used to further strengthen our national institutions, including the judiciary and the Election Commission.
- Critical citizen information like land records, census data, birth and death records, business licenses, criminal records, intellectual property registry, electoral rolls could all be maintained as blockchain-powered, tamper-proof public ledgers.

**Challenges:**

- Blockchain technology is expensive to initially put it in place.
- The massive usage of energy for the functioning of blockchain.
- Safeguarding the privacy of individuals and companies as blockchains are usually open ledgers for everyone to see.
- Knowledge of the benefits of distributed ledger technology is still limited.
- If automated risk management, smart contracts, and similar tools are deployed across a network, cascades of rapid and hard-to-control obligations and liquidity flows could propagate across a network.
- This interdependence will likely call for creative organizational thinking to address the need for governance and strong risk management

Way Forward:

- Blockchain, with all its possibilities, needs a serious look at its vulnerabilities and commerciality.
- Before introducing blockchain into the public sector data-handling system, we need a robust and informative data repository.
- Linking **IndiaChain** with Aadhar, thus creating a secure personal identity for all Indians.
- Proper regulations for the use of blockchain technology in the country.
- Identifying and resolving key issues and challenges in implementing this technology, the prime amongst those being data privacy.
- India should effectively channel its technical human capital surplus to position itself as one of the pioneers during this upcoming wave of innovation.

Topic: Conservation, environmental pollution and degradation, environmental impact assessment.

Q) Climate change is not anymore only an environmental problem, but a unique one with multi-scalar characteristic, from the global to the local. Comment, also discuss challenges in tackling the problem of climate change across the world. (250 words)

The hindu

Why this question:

The article explains in detail the issue of climate change facing the world and how it is not anymore just about being an environmental problem but much more than that, it highlights the multi-dimensional aspects of climate change and critically analyses the associate problems in tackling it.

Key demand of the question:

The answer must discuss the alarming need to address the climate change differently from the usual methods of commitments as they are not doing there bit anymore to address the impact of climate change effectively.

Directive word:

Comment– here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:**Introduction:**

In a few introductory lines explain how climate change is a multi-faceted problem today.

Body:

- Explain – why climate change is an immediate issue that needs address and action today?
- Explain the issue with facts and figures – Global warming above pre-industrial levels has touched about 1 degree Celsius etc.
- What are the challenges in addressing climate change ?
- complex linkages among emissions, concentrations, climate changes, and impacts.
- Lack of certainty about the details of future climate change.
- significant time lags in human response systems.
- Risks, judgments about risk, and adaptation needs are highly variable across different contexts.
- Suggest what needs to be done?
- Discuss Indian context and what should India's move be to tackle climate change at individual level as well as in collaboration with world countries.

Conclusion:

Conclude with urgency of the need to tackle climate change.



Introduction:

- Climate change is a complex problem. It is inextricably linked with society, economics, politics, and people's way of life. More than 190 countries signed the Paris Agreement in 2016, committing to change how they create and use energy in order to lower impacts of carbon and other greenhouse gases on the planet.
- All over the world, people and organizations are taking action to both lower carbon footprints and find innovative ways to adapt to the effects of climate change.

Body:

Climate change is an immediate issue to be tackled:

- Global warming above pre-industrial levels has touched about 1 degree Celsius.
- The IPCC 1.5 report basically says, at the current rates at which we are producing greenhouse gases, we are looking at a couple of decades really before what we have available is exhausted.
- At one level, for many people climate change has become an existential problem, a problem that risks undermining the conditions for productive life and therefore a problem that does not override but certainly permeates all kinds of other issues.
- For many others, climate change is a distant problem that is overwhelmed by more immediate issues.
- The rapid change of climate change is likely to exceed the ability of many species to migrate or adjust. Experts predict that one-fourth of Earth's species will be headed for extinction by 2050 if the warming trend continues at its current rate.
- Sea levels have risen between four and eight inches in the past 100 years. Current projections suggest that sea levels could continue to rise between 4 inches and 36 inches over the next 100 years.
- As temperatures rise globally, droughts will become more frequent and more severe, with potentially devastating consequences for agriculture, water supply and human health. This phenomenon has already been observed in some parts of Asia and Africa, where droughts have become longer and more intense.
- Hot temperatures and dry conditions also increase the likelihood of forest fires.

Challenges in addressing climate change:

- **Regional Inequality:**
 - The principle of Common but differentiated responsibilities was proposed to tackle climate change by addressing the regional inequality.
 - However, the indifferent behaviour by the developed countries has led to partial success of many global initiatives. Eg. Kyoto Protocol.
- **Developed Countries not taking responsibility:**
 - Historical emissions and pollution caused due to industrial revolution is not accepted by the industrialized nations.
 - Developed nations are unwilling to accept the responsibility and are moving away from global agreements. Eg. USA rejecting the Paris deal.
- **Finance:**
 - Huge amount of funds are required for adaptation and mitigation measures to be adopted.
 - For eg: electric mobility, certainly is a green measure, but is actually expensive, in immediate terms, in terms of cost per vehicle kilometre.
 - The cost of shifting into renewable energy is also a fiscal challenge to most countries.
- **Technology:**
 - Many adaptation and mitigation measures need sophisticated technologies and Research and Development which is an impediment to many developing and small island nations.
 - Commercialization of technology in form of Patents, evergreening has made it unaffordable.
- **Increasing use of fossil fuels.**
- **Complex linkages among emissions, concentrations, climate changes, and impacts.**
- **Lack of certainty about the details of future climate change.**
- **Significant time lags in human response systems.**
- **Risks, judgments about risk, and adaptation needs are highly variable across different contexts.**

Way Forward

- Wealthy nations like the U.S., and those of the EU argued that emissions from developing countries are consistently rising and they need to commit to more serious emission cuts. A consensus needs to be developed at the earliest.
- The immediate up scaling of ambition in the second Commitment period of Kyoto Protocol and its early ratification by all Kyoto Protocol parties would be a step in the right direction.



- Concerning mitigation, distinction enshrined in the Convention between Annex I (Developed) and non-Annex I (developing) Parties must be maintained in accordance with the principles of Equity, CBDR and other provisions of the UN Conventions.
- The 'developing versus developed country' schism needs to be diluted at the earliest and Developed Countries should avoid watering down the CBDR principle envisaged in earlier agreements.
- Investment in R&D is needed to spur innovations in sustainable climate-friendly and climate-proof productivity, and the private sector can help on this.

Q) "India's conservation policies and legislation in environmental domain over the years reveal a dichotomy of intent and action". Critically analyse. (250 words)

The hindu

Why this question:

The article provides for a detailed analysis India's conservation policies and legislation in environmental domain. It highlights that India is stridently moving away from community-involved conservation models.

Key demand of the question:

One needs to analyse India's conservation policies and legislation in environmental domain with major focus on the recent shift in its approach that has moved away from community-involved conservation models.

Directive word:

Critically analyse – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

In a few introductory lines explain the background of the question.

Body:

In brief discuss –

Discuss the recent legislations that highlights the alarming issue concerning India's environmental policy like the eviction of more than a million forest-dwelling people from their homes.

- Discuss the policies and initiatives of the government in this direction.
- Discuss why there is Expropriation in the name of conservation?
- Explain the Indian Forest Act, Forest Rights Act; lacunae with the proposed amendments etc.
- Take cues from the article and suggest your opinion and provide for a balanced judgement.

Conclusion:

Conclude with what needs to be done, suggest way forward.

Introduction:

- The Supreme Court has asked the governments of 17 states to evict an estimated one million tribal and other households living in forests after their claims of the right to live in forests were rejected under the **Forest Rights Act**. As a consequence, more than one million tribals could be displaced, mainly in central India.
- Although this order was subsequently stayed, though temporarily, it provides valuable insights into India's conservation objectives and approaches. Given the country's size and biodiversity-richness, a decision of this nature has consequences for global natural heritage.

Body:

India's conservation laws and policies:

- From the 1980s, there were a number of policies that mirrored the global shift towards inclusive conservation, such as the **1988 National Forest Policy, the 1992 National Conservation Strategy, the National Environment Policy of 2006 and the 2007 Biosphere Reserves Guidelines**.
- India's conservation legislation is separated into those that protect forests and its produce, and those that target wildlife conservation.
- Both the **Indian Forest Act, 1927** and the Wildlife Protection Act, 1972 create different types and grades of protected areas, and contain provisions to restrict or outlaw local use of natural resources and landscapes.
- India has been a vocal member of above conventions. But at home, things operate rather differently, despite there were a number of policies that mirrored the global shift towards inclusive conservation.



- The **Forest Rights Act, 2006** went beyond sanctioning local usage, to conferring rights to local communities over forest land and produce.
- The Ministry of Tribal Affairs was mandated with operationalising the Act, while conservation remained under the domain of the Ministry of Environment, Forest and Climate Change.
- However, given a hostile bureaucratic environment, the legislation faltered, except in certain pockets.
- The **Third National Wildlife Action Plan**, introduced in 2017, is categorically of the view that locals hinder conservation.
- Where communities are to be involved, it distinctly avoids the attribution of rights and instead frames usage within a bureaucracy-controlled format.

Dichotomy of intent and action:

- In the year 1990, Joint Forest Management Guidelines (JFM) created community institutions for co-management, in collaboration with the forest bureaucracy.
- Although it initially registered some success stories in certain parts of the country, JFM committees are widely critiqued as being bureaucracy-heavy, with little real devolution of powers to local communities.
- In March 2019, a comprehensive overhaul of the Indian Forest Act was proposed.
- This amendment introduces provisions for extinguishing rights granted under the Forest Rights Act.
- Further, it grants the forest bureaucracy unprecedented powers to enter and search the premises of forest-dwellers on suspicion, arrest without warrant and use firearms to meet conservation goals.
- State authority that is usually reserved to tackle terrorism, insurgency and organised crime is now to be deployed to safeguard biodiversity.
- An amendment to the Wildlife Protection Act is reportedly in the offing. India's conservation policies in recent years leave no doubt as to the model of conservation the country is intent on pursuing.

Way forward:

- Most community-based natural resource management programmes may have only limited success at achieving both conservation and human development goals.
- But the concept appears to be the best opportunity for countries like India to achieve these two outcomes of conservation and human development goals.
- The most important part of the approach is that user rights are transferred from central government to local communities.
- The model is being increasingly promoted as a conservation tool and has become the dominant approach in natural resource conservation worldwide.
- It can help the country retain its place as one of the most famous and profitable wildlife tourism destinations in the world. And it can also contribute to other economic sectors and alleviate rural poverty.

Conclusion:

- **Involving communities living in and around natural resource-rich areas in the management and use of these resources** is an effective tool of conservation that has been recognised across the world.
- This was affirmed by the **1980 World Conservation Strategy of the International Union for Conservation of Nature (IUCN)**, and the **Earth Summit's 1992 Statement of Forest Principles** and the **Convention on Biological Diversity**. India needs to **value the community-involved conservation models** like other successful countries.

Q) Do you agree that the benefits of biodiversity far exceed the costs of current levels of biodiversity protection ? Explain the impacts of biodiversity on economic activities of a country. (250 words)

The hindu

Why this question:

The article discusses in detail the economic costs associated with the biodiversity. It highlights the findings of the global assessment report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) which states that human beings have so rapaciously exploited nature, and that species belonging to a quarter of all studied animal and plant groups on earth are gravely threatened.

Key demand of the question:

The question expects one to analyse the need for Biodiversity assessments that must be factored into all economic activity.

Directive word:



Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Begin with significance of conservation of biodiversity for sustenance of economy.

Body:

Discussion should include the following aspects –

- Highlight the nature and scale of benefits that we, as a society, derive from biodiversity.
- Discuss that it is important that public goods, including those supplied by nature, are reflected in decision making. It is also important to ensure that the benefits of policies which protect biodiversity are at least commensurate with the costs of such policies.
- Explain why benefits of biodiversity far exceed the costs of current levels of biodiversity protection.
- Elaborate how a high level of biodiversity also ensures that we are
- supplied with the 'ecosystem services' that are essential to the sustainability of our standard of living and to our survival.
- Re assert on significance of the biodiversity conservation to economic aspects.

Conclusion:

Conclude with a way ahead.

Introduction:

- The overwhelming message from **the global assessment report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)** is that human beings have so rapaciously exploited nature, and that species belonging to a quarter of all studied animal and plant groups on earth are gravely threatened.
- Biodiversity not only encompasses the ecological processes as we can see them, but also holds the key to the evolutionary processes that sustain life and the cultural relationships that nurture the spirit.

Body:

Benefits of Biodiversity conservation:

- Nature provides ecosystem services which are vital for food production, for clean air and water, provision of fuel for millions, absorption of carbon in the atmosphere, and climate moderation.
- Conservation of biological diversity leads to conservation of essential ecological diversity to preserve the continuity of food chains.
- The genetic diversity of plants and animals is preserved.
- It ensures the sustainable utilisation of life support systems on earth.
- It provides a vast knowledge of potential use to the scientific community.
- A reservoir of wild animals and plants is preserved, thus enabling them to be introduced, if need be, in the surrounding areas.
- Biological diversity provides immediate benefits to the society such as recreation and tourism.
- Biodiversity conservation serves as an insurance policy for the future.

However, the modern day economy does not often include the above benefits in productivity estimates. The result of such skewed policies, as the IPBES estimates, is that the global rate of species extinction is at least tens to hundreds of times higher today than the average rate over the past 10 million years, and it is accelerating alarmingly.

Threats to Biodiversity:

- Ecological economists have for years pointed to the extreme harm that humanity as a whole is courting by modifying terrestrial, marine and freshwater ecosystems to suit immediate needs, such as rising agricultural and food output and extracting materials that aid ever-increasing consumption.
- Expanding agriculture by cutting down forests has raised food volumes, and mining feeds many industries, but these have severely affected other functions such as water availability, pollination, maintenance of wild variants of domesticated plants and climate regulation.



- Losses from pollution are usually not factored into claims of economic progress made by countries, but as the IPBES assessment points out, marine plastic pollution has increased tenfold since 1980, affecting at least 267 species, including 86% of marine turtles, 44% of seabirds and 43% of marine mammals.

Impacts of biodiversity on economic activities of a country:

- Agriculture, forestry and fisheries products, stable natural hydrological cycles, fertile soils, a balanced climate and numerous other vital ecosystem services depend upon the conservation of biological diversity.
- Food production relies on biodiversity for a variety of food plants, pollination, pest control, nutrient provision, genetic diversity, and disease prevention and control. Both medicinal plants and manufactured pharmaceuticals rely on biodiversity.
- Decreased biodiversity can lead to increased transmission of diseases to humans and increased healthcare costs.
- The outdoor tourism industry relies on biodiversity to create and maintain that which tourists come to see, as does the multi-billion dollar fishing and hunting industry.
- Amidst continuing loss of natural habitat and biodiversity, it is necessary to examine the benefit:cost ratio of investments in habitat conservation.
- Evidence has been accumulating that shows habitat conservation generates more economic benefits than does habitat conversion

Way forward:

- About 9% of 6,190 domesticated breeds of mammals used for food and agriculture had gone extinct by 2016, and another 1,000 may disappear permanently.
- Viewed against a shrinking base of wild varieties of farmed plants and animals, all countries have cause for alarm.
- They are rapidly emptying their genetic resource kit.
- Reversing course is a dire necessity to stave off disaster.
- This can be done by incorporating biodiversity impacts into all economic activity, recognising that irreparably breaking the web of life will impoverish and endanger people everywhere.

Q) “To ensure that development does not degrade lives, it is imperative to mainstream biodiversity and ecosystem concerns in policy-making”. Critically analyse. (250 words)

Economictimes

Why this question:

A new report from UN’s Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, the most comprehensive assessment of the global ecosystems to date, has provided as an indictment of how humans have treated the Earth. The report highlights the alarming situation of ecosystem degradation.

Key demand of the question:

The answer is straightforward, one must discuss in detail the significance of mainstreaming biodiversity and ecosystem concerns in policy-making.

Directive word:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer

Introduction:

write a few introductory lines , highlight the findings of the report.

Body:

Answers must discuss the following aspects :

- Provide for a narration on the present conditions of ecosystem.
- Explain why the situation is grim?
- What are the Main causes of the deterioration of the natural ecosystem? – land-use change, overfishing, pollution, climate change and population growth etc.
- Explain the need for radical transformation of the systems of consumption and production to those that are resource efficient and generate less waste through the life cycle.



- Suggest upon recent steps taken by the government in this direction.
- Provide for way forward.

Conclusion –

Conclude by reasserting their significance of policy making that is centric to biodiversity and ecosystem conservation.

Introduction:

- The first-ever **Global Assessment Report on Biodiversity and Ecosystem Services** by **Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)** has been released. The Report is termed as the first-ever such comprehensive report. It took three years for a group of 145 expert authors from 50 countries to prepare this report based on more than 15,000 scientific and government documents. It primarily looked or analysed the impact of economic development on nature and ecosystems.

Body:

Findings of the report:

- The report identified a range of risks, from the disappearance of insects vital for pollinating food crops, to the destruction of coral reefs that support fish populations that sustain coastal communities, or the loss of medicinal plants.
- It found that the average abundance of native species in most major land-based habitats has fallen by at least 20%, mostly since 1900.
- The threatened list includes more than 40% of amphibian species, almost 33% of reef-forming corals, and more than a third of all marine mammals.
- The picture was less clear for insect species, but a tentative estimate suggests 10% are at risk of extinction.
- Productivity in 23 per cent of global land has reduced due to land degradation.
- Up to \$577 billion in annual global crops are at risk from pollinator loss and 100-300 million people are at increased risk of floods and hurricanes because of loss of coastal habitats and protection.

Causes:

- This loss is a direct result of human activity and constitutes a direct threat to human well-being in all regions of the world.
- Human-induced loss in ecosystems: Three-quarters of the land-based environment and about two-thirds of the marine environment have been significantly altered by human actions, says the assessment.
- Nearly 75 per cent of all freshwater resources are now used for crop and livestock rearing activities.
- Changes in land and sea use
- direct exploitation of organisms
- pollution
- invasive alien species
- Climate change caused by burning the coal, oil and gas produced by the fossil fuel industry is exacerbating the losses, the report found.

Way forward:

- The report says there is still an opportunity for human beings to live in harmony with nature.
- But there has to be a change in the way how natural resources are governed, and things are produced and consumed.
- This is inevitable in terms of economies, livelihoods, food security, health and quality of life worldwide.
- By transformative change, that is a fundamental, system-wide reorganization across technological, economic and social factors, including paradigms, goals and values.
- The findings will also add to pressure for countries to agree bold action to protect wildlife at a major conference on biodiversity due to take place in China towards the end of next year.
- Compartmentalisation must give way to an integrated and synchronised approach. India and the world have the knowledge and regulatory framework required for the transformation.

Q) Plastic pollution is a pressing environmental concern that requires our collective action. Discuss this statement in the background of Basel Convention on the control of hazardous wastes which recently was amended to include plastic waste. (250 words)

[The hindu](#)

**Why this question:**

Recently Around 180 governments agreed on a new UN accord to regulate the export of plastic waste. Thus, it is important for us to evaluate the pressing concern that plastic pollution poses on the environment today.

Key demand of the question:

Analyse in detail how Plastic pollution is a pressing environmental concern that requires our collective action. The growing levels of plastic waste are becoming unmanageable, every year, more than eight million tons end up in the oceans. Thus, we have to analyse the causes and consequences of the same.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:**Introduction:**

In a few introductory lines highlight some facts to justify the current menace of plastic pollution.

Body:

In brief discuss –

- Start by stating some facts /reports to justify the current conditions of plastic pollution.
- Highlight the agreement that was reached recently that took the form of an amendment to the Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal, to include plastic waste and improve the regulation of its trade.
- Identify the Dangers of the Plastic Era – discuss the causes and consequences.
- Highlight the need for collective action.

Conclusion:

Conclude by reasserting the need to curb and control the menace of plastic pollution and the threat it poses on the environment.

Introduction:

- The **Basel Convention on the Control of Transboundary Movements of Hazardous Wastes** and their Disposal was created to protect people and the environment from the negative effects of the inappropriate management of hazardous wastes worldwide. Around 180 governments recently agreed on a **new UN accord to regulate the export of plastic waste**, some eight million tonnes of which ends up in the oceans each year.

Body:Key highlights of the accord:

- The accord members agreed to make global trade in plastic waste more transparent and better regulated and to ensure that its management is safer for human health and the environment.
- The **legally binding framework** which amends the Basel Convention.
- The accord affects products used in a broad array of industries, such as healthcare, technology, aerospace, fashion and food, and beverages.
- The accord is a crucial first step towards stopping the use of developing countries as a dumping ground for the world's plastic waste, especially those coming from rich nations.
- Accordingly, countries will have to figure out their own ways of adhering to the accord.
- Countries that did not sign the deal like the United States could be affected by the accord when they ship plastic waste to countries that are on board with the deal.
- The agreement is likely to lead to customs agents being on the lookout for electronic waste or other types of potentially hazardous waste more than before.

Dangers posed by Plastic pollution:

- The recycling efforts are failing to keep pace with production.
- Current standard water treatment systems do not filter out all of the microplastics.
- It is creating an environmental crisis comparable to climate change.
- Cattle and other animals unknowingly consume some of this plastic material which is not digested, end up with painful death. This will have an impact for the farmers and on the Indian economy.
- Pollutants also upset primary food production in waterbodies by preventing the entry of sunlight into water.
- Plastic pollution in beaches also impact tourism.
- The ban on plastic carry bags below 40 microns in many states has not yielded the desired results

**Way forward:**

- ULBs could take cue from cities like Bangalore where dry waste collection centres have not only been established but also have a self-sustainable business model.
- Municipalities must develop waste collection plans, coupled with outreach activities, to sensitise citizens on waste segregation.
- It is imperative to develop a phase-wise implementation of the EPR programme with yearly targets and a system of nationwide offsets and credit to ensure effective implementation of the rules.
- International examples:
 - The success of imposing a plastic bag fee has also been established in cities like Chicago and Washington, showing that such interventions could be effective in shaping behaviour change.
 - The European Union is mulling new laws to ban some everyday single-use plastic products including straws, cutlery and plates citing plastic litter in oceans as the concern prompting the action.
- Encouraging plogging:
 - Picking up litter while jogging or strolling was kick-started on a small scale in a small part of Stockholm about an year ago, it has spread across the globe and India can adopt this as well.
- Countries such as the U.S., Canada and the Netherlands have already put in place regulations to stop the use of microbeads in personal-care products. The sooner India adopts such regulations, the better
- Recycling has to ensure that wastes are converted into products of the same quality, if not better, compared to the original product.
- Stop using single use plastic:
 - The Government of the state of Maharashtra has announced an ambitious ban of plastic bags, water bottles and other disposable plastic items in the state after the state civic bodies started facing serious problems on garbage disposing and its management.
 - Fine for violating the ban will be Rs 5,000 for the first offence, Rs 10,000 for the second and Rs 25,000 for the third offence or a three-month jail term or both.
- With a worldwide crisis due to plastic waste, India has to involve all the stakeholders take the responsibility of ensuring minimisation, reuse and recycling of plastic to the maximum.
- Sensitise people to stop littering and segregate their waste. Nowadays the most popular eco-conscious effort is participating in beach cleanups.
- Sanitary napkins made from biodegradable material, menstrual cups should be promoted.

Q) CSIR-Centre for Cellular and Molecular Biology recently sequenced Asiatic lion genome. Discuss in what way such projects can be significant turning points in the conservation efforts of such endangered animals ? (250 words)

The hindu

Why this question:

For the first time, the entire genome of Asiatic lion has been sequenced by scientists from CSIR-Centre for Cellular and Molecular Biology, Hyderabad.

The objective was to understand the species at DNA level and study if there were any specific problems with regard to adaptability to environment or behaviour vis-à-vis other big cats.

Key demand of the question:

Analyse in detail the project and Significance of the project and how it can prove to be a significant turning points in the conservation efforts of such endangered animals.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:**Introduction:**

In a few introductory lines highlight some facts depicting the status of Asiatic Lion in India.

Body:

In brief discuss –

- Start by discussing the details of the project – What is genome sequencing? About Asiatic lion and CCMB.



- Highlight the significance of such a project – How it would help researchers to better understand the evolution of Asiatic lions and also make possible comparative analysis with other big cats.
- It would enable scientists to develop specific markers to study population genetics (the differences at the gene level within a population) and get newer insights into its population status and subsequent management.
- It will enable better disease and population management of the endangered big cat by identifying characteristics which are specific to Asiatic lions etc.

Conclusion:

Conclude by reasserting the significance of such projects in the conservation efforts.

Introduction:

- A genome is an organism's complete set of DNA, including all of its genes. Genomics is an interdisciplinary field of science focusing on the structure, function, evolution, mapping, and editing of genomes.
- Genomics also involves the sequencing and analysis of genomes through uses of high throughput DNA sequencing. For the first time, the entire genome of Asiatic lion has been sequenced by scientists from **CSIR-Centre for Cellular and Molecular Biology, Hyderabad**.

Body:

- The objective is to **understand the species at DNA level and study if there are any specific problems with regard to adaptability to environment or behaviour vis-à-vis other big cats.**

Importance of Genome Sequencing:

- Sequencing the genome is an important step towards understanding it.
- The genome sequence will represent a valuable shortcut, helping scientists find genes much more easily and quickly. A genome sequence does contain some clues about where genes are, even though scientists are just learning to interpret these clues.
- Scientists also hope that being able to study the entire genome sequence will help them understand how the genome as a whole works—how genes work together to direct the growth, development and maintenance of an entire organism.
- Finally, genes account for less than 25 percent of the DNA in the genome, and so knowing the entire genome sequence will help scientists study the parts of the genome outside the genes.
- This includes the regulatory regions that control how genes are turned on and off, as well as long stretches of “nonsense” or “junk” DNA—so called because significance of it hasn't been established.

Need and significance:

- This firsthand information would help researchers to better understand the evolution of Asiatic lions and also make possible comparative analysis with other big cats.
- The population of the endangered Asiatic lion is very low — only 523 animals are present in the Gir forests.
- The genome sequencing would enable scientists to develop specific markers to study population genetics (the differences at the gene level within a population) and get newer insights into its population status and subsequent management.
- The study will enable better disease and population management of the endangered big cat by identifying characteristics which are specific to Asiatic lions. E.g.: 21 lions reportedly died between September and October in Gir forest of Gujarat due to Canine distemper virus, Such incidents can be avoided.
- Comparative genomics between African and Asiatic lions could be undertaken once the complete genome of the African lion is sequenced.
- Comparative analysis with other felids and mammalian genomes unravelled the evolutionary history of the Asiatic lion and its position among other felids.
- The study noted that the evaluation of genetic diversity placed the Asiatic lion in the lowest bracket of genomic diversity index highlighting the gravity of its conservation status.

Conclusion:

- With the complete genome of royal Bengal tiger, African Cheetah and Jaguar available, comparative studies of all these big cats would be possible. Such researches will help in adopting a multi-pronged approach towards conservation efforts.



Q) List down the objectives of India Cooling Action Plan. Explain how it is a bold response to addressing India's future cooling needs while neutralizing its impacts. (250 words)

[Indianexpress](https://www.indianexpress.com)

Why this question:

The author in the article discusses in detail how new plan for cooling technologies is in sync with environmental challenges in India. India is one of the first countries in the world to develop a comprehensive Cooling Action plan which has a long-term vision to address the cooling requirement across sectors and lists out actions which can help reduce the cooling demand. Thus, it is important for us to evaluate its significance.

Key demand of the question:

Analyse in detail the objectives of India Cooling Action Plan and explain how it is a bold step taken by India in this direction.

Directive word:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In a few introductory lines highlight the significance of the ICAP.

Body:

- In brief discuss that – India is the first country in world to develop such a document (ICAP), which addresses cooling requirement across sectors and lists out actions which can help reduce the cooling demand. The overarching goal is to provide sustainable cooling and thermal comfort for all while securing environmental and socio-economic benefits for the society.
- Broad objectives of the India Cooling Action Plan include:
- Assessment of cooling requirements across sectors in next 20 years and the associated refrigerant demand and energy use.
- Map the technologies available to cater the cooling requirement including passive interventions, refrigerant-based technologies and alternative technologies such as not-in-kind technologies.
- Suggest interventions in each sector to provide for sustainable cooling and thermal comfort for all.
- Focus on skilling of RAC service technicians.
- Develop an R&D innovation ecosystem for indigenous development of alternative technologies.
- Explain the benefits India can reap from it

Conclusion:

Conclude with way forward.

Introduction:

- India is the first country in world to develop India Cooling Action Plan which addresses cooling requirement across sectors and lists out actions which can help reduce the cooling demand.
- The overarching goal is to provide sustainable cooling and thermal comfort for all while securing environmental and socio-economic benefits for the society.

Body:

The India Cooling Action seeks to

- reduce cooling demand across sectors by 20% to 25% by 2037-38,
- reduce refrigerant demand by 25% to 30% by 2037-38,
- Reduce cooling energy requirements by 25% to 40% by 2037-38,
- recognize “cooling and related areas” as a thrust area of research under national S&T Programme,
- Training and certification of 100,000 servicing sector technicians by 2022-23, synergizing with Skill India Mission. These actions will have significant climate benefits.

The broad objectives of the India Cooling Action Plan include:

- Assessment of cooling requirements across sectors in next 20 years and the associated refrigerant demand and energy use.
- Map the technologies available to cater the cooling requirement including passive interventions, refrigerant-based technologies and alternative technologies such as not-in-kind technologies.



- Suggest interventions in each sector to provide for sustainable cooling and thermal comfort for all.
- Focus on skilling of RAC service technicians.
- Develop an R&D innovation ecosystem for indigenous development of alternative technologies.

Environmental and Socio-Economic benefits:

- Thermal comfort for all – provision for cooling for Economically Weaker Section (EWS) and Low Income Group (LIG) housing
- Sustainable cooling – low GHG emissions related to cooling
- Doubling Farmers Income – better cold chain infrastructure – better value of produce to farmers, less wastage of produce
- Skilled workforce for better livelihoods and environmental protection
- Make in India – domestic manufacturing of air-conditioning and related cooling equipment.
- Robust R&D on alternative cooling technologies – to provide a push to innovation in the cooling sector.

Conclusion:

- ICAP addresses cooling requirement across sectors and lists out actions which can help reduce cooling demand. Its thrust is to look for synergies in actions for securing both environmental and socio-economic benefits.
- At its core, ICAP is about improving the quality of life and productivity of the people of India, and achieving many of the Sustainable Development Goals (SDGs) — thus accelerating the country's growth trajectory.

Q) Do you think growth of electric vehicles can be seen as an opportunity to create more livable cities ? Account for pros and cons of electric vehicles in justifying sustainable mobility the heartbeat of more livable cities in India. (250 words)

Hindustantimes

Why this question:

The article explains how Growth in EVs in India is not just a question of pushing one technology over another, it analyses in detail the relationship of mobility vehicles and sustainable and livable cities.

Key demand of the question:

The answer must discuss in detail the pros and cons associated with growth of electric vehicles in India and their contribution towards sustainable and livable cities.

Directive word:

Account for – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer

Introduction:

write a few introductory lines on electric mobility of vehicles.

Body:

Answers must discuss the following aspects :

- What do you understand by sustainable mobility? Role of electric vehicles in achieving the same.
- How can we achieve sustainable mobility to make India's cities more livable? – Explain how as India builds technology-filled "smart" cities, policymakers have an important opportunity to use sustainable mobility strategies to design cities around people, not cars.
- Comment on Urban mobility in India.
- Discuss in detail role played by electric vehicles, have a discussion on government's efforts in this direction like FAME II etc.

Conclusion –

Conclude that there is a need for models that marry efficiency and speed, cost, mobility and employment. At the core, initiatives must address the need to move people rather than traffic.

Introduction:

- Electric vehicles (EVs) are automobiles that run on electricity only. They are propelled by one or more electric motors powered by rechargeable battery packs.
- Electric vehicles are cleaner than petroleum-fuelled vehicles and are seen as a promising solution to global warming.

**Body:**

Electric vehicles and sustainable mobility:

- In India, the automobile industry is one of the key sectors driving economic growth.
- It is anticipated that the 2020s will be the decade of the electric car and a step forward towards a clean environment for the next generation.
- Electric vehicles are cleaner than petroleum-fuelled vehicles and are seen as a promising solution to global warming.
- Adoption of electric and shared vehicles could help country save \$60 billion in diesel and petrol along with cutting down as much as 1 gigatonne (GT) of carbon emissions by 2030. • It will help in achieving the target of "Paris climate agreement".
- Electric vehicles operating cost per kilometre driven is lower and it contributes to cutting city pollution.
- According to a research, 90 per cent of India's car owners would willingly switch to electric cars, with proper infrastructural support.
- The government aims for 30 per cent electric mobility by 2030

Pros of Electric Vehicles:

- **No Fuel Required**
 - Electric cars are entirely charged by the electricity, meaning there is no need to buy any fuel ever again.
 - Though electricity isn't free, an electric car is far cheaper to run.
- **No Emissions**
 - Electric cars are 100 percent eco-friendly as they run on electrically powered engines
 - It does not emit toxic gases or smoke in the environment as it runs on clean energy source
 - Reducing the carbon footprint and positively affecting the economy
- **Reduced Noise Pollution**
 - Electric cars put curb on noise pollution as they are much quieter
 - Electric motors are capable of providing smooth drive with higher acceleration over longer distances
- **Cost Effective**
 - with more technological advancements, both cost and maintenance have gone down making it cost effective
- **Low Maintenance**
 - Electric cars run on electrically powered engines and hence there is no need to lubricate the engines
 - Therefore, the maintenance cost of these cars has come down.

Cons of Electric Vehicles:

- **Short Driving Range and Speed**
 - Most of these cars have range about 50-100 miles and need to be recharged again.
- **Battery Recharge Issues**
 - Lack of attention on building charging infrastructure.
 - An electric car takes about 4-6 hours to get fully charged. Therefore there is a need for dedicated power stations as the time taken to recharge them is quite long.
- **Silence as Disadvantage**
 - Silence can be a bit disadvantage as people like to hear noise if they are coming from behind them
 - An electric car is however silent and can lead to accidents in some cases.
- **Limited seating capacity**
 - They are not meant for entire family and a third person can make journey for other two passengers bit uncomfortable.
- **Not Suitable for Cities Facing Shortage of Power**
 - Cities already facing acute power shortage are not suitable for electric cars.
 - The consumption of more power would hamper their daily power needs.
- **High cost**
 - The primary reason for the current high prices of EVs is the expensive battery

Way forward:

- For EVs to contribute effectively, we need commensurate efforts in developing an entire ecosystem.
- Need to shift the focus from subsidizing vehicles to subsidizing batteries because batteries make up 50% of EV costs.



- Increasing focus on incentivizing electric two-wheelers because two-wheelers account for 76% of the vehicles in the country and consume most of the fuel.
- A wide network of charging stations is imminent for attracting investment.
- Work places in tech parks, Public bus depots, and Multiplexes are the potential places where charging points could be installed. In Bangalore, some malls have charging points in parking
- Corporates could invest in charging stations as Corporate Social Responsibility compliances.
- Addressing technical concerns like AC versus DC charging stations, handling of peak demand, grid stability etc.
- Private investment in battery manufacturing plants and developing low cost production technology is needed.
- India is highly dependent on thermal sources, which account for about 65% of current capacity. As EV adoption increases, so should the contribution of renewables.
- Need for a policy roadmap on electric vehicles so that investments can be planned.
- Acquiring lithium fields in Bolivia, Australia, and Chile could become as important as buying oil fields as India needs raw material to make batteries for electric vehicles.
- Providing waiver of road tax and registration fees, GST refunds and free parking spaces for EVs.

Q) What are microplastics ? Discuss the concerns posed by it. What should be the desired plan of action to overcome the threats posed by the same ? (250 words)

Reference

Why this question:

The article discusses in detail A recently conducted study of microplastics in three coastal cities in the country that has found that the population size has a direct impact on the abundance and nature of microplastics on their seashore. It has also been found that fibrous microplastic is more prevalent than granular microplastics on Indian shores.

Key demand of the question:

Answer is straightforward and is about discussing the concept of microplastics and the issues associated with it along with suggestions of what needs to be done to overcome the menace.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In a few introductory lines highlight the context of the question.

Body:

- In brief discuss what you understand by microplastics? – Microplastics are tiny particles which are present in many sources, including carry bags and pet bottles. These tiny particles easily pass through water filtration systems and end up in the water bodies, posing a potential threat to aquatic life. Microbeads, a kind of microplastic, are used as exfoliates in some cleansers and toothpastes. Even though banned in US and Canada, microbeads are still used in India.
- How harmful is it? – Microplastics can migrate through the intestinal wall and travel to lymph nodes and other bodily organs, shows the Orb report. Microplastics have also been shown to absorb toxic chemicals linked to cancer and other illnesses, and then release them when consumed by fish and mammals. So if plastic fibers are in your water, experts say they're surely in your food.
- What are the concerns? – It holds the potential for both bioaccumulation and biomagnification.
- What needs to be done?
- Regulations on use of plastics in general and microplastics in particular should be put in place by the government.
- Alternatives should be found to tackle with rising consumerism and the increasing use of plastic in everyday life.
- Invention of new, more readily degradable bio-based materials for the plastics could be a way.
- The entire flow chain from manufacturer to the user to the waste collector and the recycling authority should be made aware of the risks.

Conclusion:

Conclude with way forward.

**Introduction:**

- Microplastics are small plastic particles in the environment that are generally smaller than 1mm down to the micrometer range. Microplastics can be formed by fragmentation of large plastic waste material.
- Microfibres from washing of textiles, microbeads used in cosmetics and even paint from land run-offs can dump microplastics in the ocean. According to a 2017 International Union for Conservation of Nature (IUCN) report, microplastics are estimated to constitute up to 30% of marine litter polluting the oceans.

Body:**Concerns posed by Microplastics:**

- Microplastics escape the filtration and treatment processes for waste water and end up in sites of nature.
- This is resulting in significant global impacts on wildlife from marine environment pollution.
- Microplastics are killing the fish before they reach reproductive age, stunted growth and altering the behaviour in some fishes.
- Microplastics are found in the viscera of dead sea birds, reptiles like turtles, whales etc.
- World's coastal countries currently do not have the concerned recycling policies nor the technical capabilities, and so large quantities of plastic are not recycled and enter landfill.
- The durable properties of plastics make them persistent and slow to degrade in the environment entering the food chains.
- It holds the potential for both bioaccumulation and biomagnification.
- Once the microplastics enter foodchain, they carry synthetic chemical compounds such as PCBs and PAHs, which are carcinogenic.
- Unlike POPs (Persistent Organic Pollutants) or chlorofluorocarbons (CFCs), Plastic pollution has received little attention in terms of international agreements.
- **Microplastics make up 94 percent** of an estimated 1.8 trillion pieces of plastic in the patch. But that only amounts to eight percent of the total tonnage

Measures needed:

- Local actions are required for mitigating plastic pollution, using mechanisms such as bans on plastic bags, maximum daily limits for emissions into watersheds, and incentives for fishing gear retrieval.
- Microbeads in cosmetics, daily use items must be banned globally.
- Countries should come together to establish measurable reduction targets for plastic waste. A meaningful international agreement—one with clearly defined waste reduction targets is the need of the hour.
- Effective policies must take into account all stages of the lifecycle of plastic—connecting producers to users and ultimately to waste managers.
- Nonprofits like 5 Gyres are now pushing an agenda toward public awareness, corporate responsibility and the idea of a circular economy — an economy that focuses on keeping waste to a minimum while maximizing materials' use.
- Fossil fuel subsidies incentivise the plastic market. Hence, Countries should end fossil fuel subsidies. Annually, 4–8% of oil is used to produce raw plastic.
- India has a major problem dealing with plastics, particularly single-use shopping bags that reach dumping sites, rivers and wetlands along with other waste.
- The most efficient way to deal with the pollution is to control the production and distribution of plastics.
- Banning single-use bags and making consumers pay a significant amount for the more durable ones is a feasible solution.
- Enforcing segregation of waste will retrieve materials and greatly reduce the burden on the environment.
- Waste separation can be achieved in partnership with the community, and presents a major employment opportunity.
- Eco-friendly substitutes (cloth/paper/jute bags, leaves/areca leaf plates, paper straws) should be developed. For this, scientific and financial support (soft loans and subsidies) is required.

Conclusion:

- Marine plastic pollution is a “planetary crisis,” and we should hope for a “Paris-style” global treaty aimed at tackling it. We cannot transform our world into a ‘plastic planet’. What is needed is collective public effort to stop plastic pollution and safeguard our ecosystem/biodiversity.



Q) According to a new study released by the World Resources Institute (WRI), India's forest cover stands at 21% against global standard of 33.3%. Critically analyse the alarming situation of India's declining forest cover. What needs to be done ? (250 words)

[Indiatimes](https://www.indiatimes.com)

Why this question:

The question is to debate the current alarming conditions of forest cover in India.

Demand of the question:

The answer must explain the current conditions of the forest cover, reasons that have lead to the decline and suggestions as to what should be the way forward to tackle the alarming issue.

Directive:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

The answer to the question must have the following parts:

- Quote the report and facts of it – World Resources Institute (WRI), India's forest cover stands at 21% against global standard of 33.3%.
- Discuss what are the reasons causing the decline in the forest cover?
- What are its consequences?
- What needs to be done to overcome the alarming issue?

Conclusion:

Conclude with what should be the way ahead.

Introduction:

- Forests are among the first casualties as human populations explode. It is estimated that between 1950 and 1980, around 50 lakh hectares of forestland was diverted for non-forestry activities and India is unable to reach the national goal of 33 per cent.
- Yet forestlands continue to be diverted for non-forestry purposes in an ad hoc manner. In the light of the contemporary challenges like climate change, human-wildlife conflict, intensifying water crisis, increasing air and water pollution and deteriorating environment, urgent action is required to conserve and grow the forest cover.

Body:

- The Global Forest Watch (GFW) released by World Resources Institute (WRI) reveals that India has lost over 1.6 million hectare of tree cover between 2001 and 2018, about four times the geographical area of Goa.

Findings of the report:

- In India, five north-eastern states — Nagaland, Tripura, Meghalaya, Mizoram and Manipur — were responsible for over 50% of all tree cover loss in the same period.
- The main reason for loss of tree cover in the north-eastern states is diversion of forest land and climate change.
- The loss of tree cover contributed to 172 MT of carbon emissions in India during this period.
- The analysis reveals the total tree cover which used to be 12% of the country's geographical area in 2000 reduced to 8.9% in 2010.

Challenges leading to alarming situation of declining forest cover:

- There have been instances of private players displacing tribal communities from the forests and cutting down forests for industries.
- The ecosystem services performed by plantations that have a lot of trees grown for commercial purposes cannot be equated with those of an undisturbed assemblage of plants, trees and animals.
- A flawed definition of "forest cover" allows the government to claim growth in total forest cover despite large-scale deforestation.
- India's forest cover could actually be masking massive deforestation as the areas that have turned green are not necessarily natural forests, but plantations
- Environmental economists have come to regard the calculation of national accounts of wealth and development as weak, because governments do not add the benefits of functions such as flood control and climate moderation to the value of forests.



- Rotational felling of trees by forest departments, diversion of forest lands for developmental activities, submergence of forest cover, agriculture expansion, biotic pressures and natural disasters as other reasons for the decrease in the forest cover.
- There have been instances of violation of forest right act, even the CAMPA act, land acquisition rules and regulations.
- The latest draft forest policy overlooks the ecological and social implications of carbon and production forestry and the need for decentralised democracy.

Measures needed:

- India must review the programmes that it has been pursuing to revive forests, and move away from monoculture plantations that are favoured by even forest development corporations in many States.
- Scientific reforms to bring true nature back are needed.
- The latest assessment categorises more than 300,000 sq km of area as open forests with a tree canopy of 10-40%. These lands provide the opportunity to bring back diverse, indigenous trees.
- Such a measure, combined with a policy against allowing open cast mining, can bring about a renaissance.
- Dedicated efforts will be required to protect the precious forests of the Northeast.
- The forest policy must be prepared by involving the stakeholders viz. people along with the state.
- Community-led initiatives have successfully regenerated forests by adopting sustainable- use practices, regeneration through traditional knowledge of forests and species, guarding and penalizing poachers, among others. These must be promoted.
- Innovative solutions like Tree Ambulance in Tamil Nadu must be emulated across the country.
- Identify and reduce the dependency. For instance fuel wood via LPG connections and promoting fast growing timbers in forest fringes, Grazing via stall feeding or rotational grazing, controlling commercial exploitation of forests, adopt zero-tolerance to fires setting targets to reduce fires by 50%, 25% to 10% etc.
- Increase surveillance and setup legal cell in forest department to follow-up on court cases

Conclusion:

- India's diverse forests support the livelihoods of 250 million people, providing them firewood, fodder, bamboo, beedi leaves and many other products. The timber currently benefits the state treasury. There is a need of revamping India's forest policy.

Q) "India's climate adaptation needs are high but also diverse given the bio-geographic and climate variations." Discuss. (250 words)

Reference

Why this question:

The article discusses in detail the case of Climate change knowledge management in India.

Key demand of the question:

The answer must evaluate how India's climate adaptation needs are high but also diverse, given the bio-geographic and climate variations.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In a few introductory lines explain what you understand by the question; climate change knowledge, its application in India.

Body:

Body of the answer to capture the following dimensions:

- What is Knowledge management? – Knowledge management is an important component in technical assistance programmes on climate change, which aims to capture good practices for feeding into development policies and programmes and support capacity building.
- What is the Indian case? – the bio-geographic and climate variations from the coasts to the Himalayan mountain ranges, and average annual rainfall pattern varying from 300 to 3,000 millimeter (mm). Explain that There is a deficiency of knowledge products on climate change impacts, vulnerability assessment and cost-effective adaptation and resilience planning.



- Highlight what are the policies in this direction? – National Mission on Strategic Knowledge on Climate Change, what are the mission objectives etc.
- Discuss what needs to be done?

Conclusion:

Conclude with what should be the way forward.

Introduction:

- India has a diverse bio-geographic and climate variations from the coasts to the Himalayan mountain ranges, and average annual rainfall pattern varying from 300 to 3,000 millimetre (mm). The policy of one size fits all cannot be adopted to tackle the climate change effects.

Body:

- Knowledge management is an important component in technical assistance programmes on climate change, which aims to capture good practices for feeding into development policies and programmes and support capacity building.

Current Scenario of Indian Knowledge management:

- There is a deficiency of knowledge products on climate change impacts, vulnerability assessment and cost effective adaptation and resilience planning.
- The PRECIS (Providing REgional Climates for Impact Studies) climate model, published in 2006 and revised in 2012, is still at a very coarse resolution, and the authors from the Indian Institute of Science acknowledge the limitations of climate models on assessing extreme climate projections that are important for adaptation planning.
- The Coordinated Regional Downscaling Experiment (CORDEX) — recently established by the World Climate Research Program (WCRP) and Indian Institute for Tropical Meteorology, with the aim of developing an international coordinated framework to generate improved regional climate change projections world-wide — is yet to publish usable climate change projections for developing adaptation plans in India.
- In absence of information on climate change impacts and vulnerability assessment, State Action Plan on Climate Change (SAPCC) has come up with weak adaptation strategies and unrealistic cost estimates.
- The Climate and Development Knowledge Network (CDKN) has only about 33 knowledge products by itself and 14 by its partner organisation on the theme of adaptation and resilience for India.
- There is also very less documentary evidence on ecosystem-based approaches and traditional knowledge on climate adaptation.

Policies in this direction:

- **The National Mission on Strategic Knowledge on Climate Change (NMSKCC)** was made as one of the eight national missions in the right spirit.
- The mission's objective was to develop knowledge on climate change that can cater to climate action plans.
- It has helped set up knowledge management cells in almost all states to support the research and training activities for implementation of SAPCC.

Some objectives of the NMSKCC are:

- Supporting research work on creating regional climate models to assess impacts on different ecological zones in the country.
- Encouraging research and establishing research networks on impacts of climate change on key sectors (agriculture, health, biodiversity, oceans and coastal systems etc.).
- Create institutional network for knowledge exchange and develop institutional and capacity and human resource development.
- Provide inputs to other national missions.

Challenges of NMSKCC:

- There is no scope for participation of private sector in research and collaborations and partnerships for interdisciplinary research and international cooperation on science and technology.
- Many of the state knowledge management cells are yet to add on repositories on research publications, accessible knowledge products in forms of policy brief, reports and videos.

Way forward:

- Knowledge management on climate adaptation is very essential.
- There is a need to refine the current models on impact assessments.
- Successful pilot projects on adaptation must be promoted, documented and peer reviewed and such knowledge products must be disseminated in widest possible knowledge forums.



- Scientists must also consider making their work on adaptation and resilience accessible and translate to easily understandable knowledge products like blogs and policy briefs.
- Workshops and meetings for knowledge sharing and presentation of best practices must be encouraged.
- South-South and North-South cooperation with developing and developed countries particularly on climate change impact assessments, including using integrated assessment models to assess economic impacts of climate change and evaluating cost benefit analysis of different adaptation options, is essential.
- Exposure visits to countries that have demonstrated projects on climate change adaptation such as Bangladesh would help in knowledge exchange and peer learnings.

Topic: Disaster and disaster management.

Q) Discuss the Significance, composition and key functions of National Crisis Management Committee (NCMC). (250 words)

[Reference](#)

[Reference](#)

Why this question:

Recently the National Crisis Management Committee (NCMC) under the chairmanship of Sh. P. K. Sinha, Cabinet Secretary, met again to take stock of the preparatory measures arising out of the Cyclonic Storm 'Fani'. Thus it is important for us to know the working of NCMC and its importance.

Key demand of the question:

The answer must provide for a detailed explanation about the role played NCMC in handling crisis circumstances like that of cyclone Fani to effectively mitigate such situations.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer

Introduction:

write a few introductory lines about the importance of such committees.

Body:

Answers must discuss the following aspects :

- About NCMC- At the national level, Cabinet Committee on Security (CCS) and National Crisis Management Committee (NCMC) are the key committees involved in the top-level decision-making with respect to Disaster Management (DM). It deals with major crisis which have serious or national ramifications.
- Its composition – Cabinet Secretary (Chairperson). Secretaries of Ministries / Departments and agencies with specific Disaster management responsibilities.
- Its key functions – Oversee the Command, Control and Coordination of the disaster response. Give direction to the Crisis Management Group (CMG) as deemed necessary.

Conclusion –

Conclude with significance of such organs in handling crisis situations.

Introduction:

- A National Crisis Management Committee is a temporary committee set up by the Government of India in the wake of a natural calamity for effective coordination and implementation of relief measures and operations.
- It is headed by Cabinet Secretary. Recently the National Crisis Management Committee (NCMC) under the chairmanship of Sh. P. K. Sinha, Cabinet Secretary, met again to take stock of the preparatory measures arising out of the Cyclonic Storm 'Fani'.

Body:

Significance:

- It is the **country's apex body to handle emergency situations**.
- At the national level, Cabinet Committee on Security (CCS) and National Crisis Management Committee (NCMC) are the key committees involved in the top-level decision-making with respect to Disaster Management (DM).
- It deals with major crisis which have serious or national ramifications.

**Composition:**

A National Crisis Management Committee (NCMC) has been constituted in the Cabinet Secretariat. The composition of the Committee is as under:-

- Cabinet Secretary- Chairman
- Secretary to Prime Minister Member
- Secretary (MHA) Member
- Secretary (MCD) Member
- Director (IB) Member
- Secretary (R&AW) Member
- Secretary (Agri & Coopn.) Co-opted Member
- An officer of Cabinet Secretariat. Convenor

Key functions:

- NCMC reviews the preparedness with the States and concerned Departments of Government of India to deal with the situation arising out of the natural calamities.
- It directs mobilisation of additional resources to all agencies who are engaged in rescue and relief operations
- It looks after the effective implementation of relief measures in the wake of a natural calamity
- NCMC will give such directions to the Crisis Management Group of the Home Ministry as deemed necessary.
- The Secretary (A&C) will be responsible for ensuring that all developments are brought to the notice of the NCMC promptly.

Conclusion:

- Thus, the NCMC plays a vital role in disaster management by overseeing the Command, Control and Coordination of the disaster response.

Q) Underline the development perspective to disaster management with focus on disaster management in coastal regions. (250 words)

Reference**Why this question:**

The question is in the backdrop of recent cyclone Fani that has hit coastal regions of coastal Odisha. Thus it is important for us to evaluate the significance of Disaster management in such regions.

Key demand of the question:

The answer is intended to evaluate the development perspective of Coastal area and the planning and management of the same with a focus on disaster management and the protective role of coastal ecosystem.

Structure of the answer:**Introduction:**

In a few introductory lines narrate the onset of cyclone Fani/ disasters that have been witnessed by coastal regions of India.

Body:

- Explain – The recovery process post such disasters in the coastal regions continue to generate awareness of the need for an integrated approach to decision-making in coastal regions that balances the need to accommodate seemingly conflicting objectives such as ecosystem management, housing and economic development.
- Discuss that analysis of communities that have experienced disasters reveal that too often in the rush to return to “normal,” rebuilding occurs in such a way as to recreate, and often increase exposure to repeat hazards, while not taking into consideration lessons learned from the event such as the protective role of forests and dense vegetation buffers. Such rapid rebuilding tends not to be based on plans developed before the event that identified safety set-back distances, creation of buffer zones and optimal land uses.
- Discuss the Regional Vulnerabilities in Indian scenario with special emphasis on coastal regions
- What are the current institutional arrangements available? What needs to be done to make them better and make them work more effectively? .
- Discuss what should be done to overcome such situations.

Conclusion:

Conclude with need for managing Disasters with focused approach.

**Introduction:**

- Cyclone Fani is only the second severe cyclone in the last 118 years to form in the Bay of Bengal (BOB) in the month of April and cross over to the Indian mainland, according to data from the India Meteorological Department (IMD).
- April cyclones are rare and the track and severity of Fani makes it even rarer. In recent times, cyclones have either had unusual timing, like Cyclone Pabuk in January, or they have intensified rapidly before making landfall, like Cyclone Ockhi in 2017 and Cyclone Titli last year.

Body:**India's key vulnerabilities:**

- Coastal states, particularly in the eastern coast and Gujarat on the west coast are vulnerable to cyclones.
- 4 crore hectare land mass is vulnerable to floods.
- 68% of the net sown area is vulnerable to drought.
- 55% of total area is in Seismic zones –III to V and vulnerable to earthquakes.
- Sub-Himalayan region and western Ghats are vulnerable to landslides.

Disasters lead to enormous economic losses that are both immediate as well as long term in nature and demand additional revenues. Also, as an immediate fall-out, disasters reduce revenues from the affected region due to lower levels of economic activity leading to loss of direct and indirect taxes. In addition, unplanned budgetary allocation to disaster recovery can hamper development interventions and lead to unmet developmental targets.

With the kind of economic losses and developmental setbacks that the country has been suffering year after year, the development process needs to be sensitive towards disaster prevention and mitigation aspects. There is thus need to look at disasters from a development perspective as well.

Current institutional measures to tackle such incidences:

- The **National Cyclone Risk Mitigation Project (NCRMP)**, to be implemented with financial assistance from the World Bank, is envisaged to have four major components:
 - Component A: Improvement of early warning dissemination system by strengthening the Last Mile Connectivity (LMC) of cyclone warnings and advisories.
 - Component B: Cyclone risk mitigation investments.
 - Component C: Technical assistance for hazard risk management and capacity-building.
 - Component D: Project management and institutional support.
- These components are highly interdependent and have to be implemented in a coherent manner.
- In 2016, **National Disaster Management Plan** was unveiled to tackle disaster. It provides a framework to deal with prevention, mitigation, response and recovery during a disaster.
- The **NDMA** had come up with its **National Guidelines of Management of Cyclones in 2008**. The basic premise of these guidelines is that the mitigation has to be multi-sectoral.
- Developing Integrated Coastal Zone Management (ICZM) frameworks for addressing the sustainability and optimal utilisation of coastal resources as also cyclone impact minimisation plans.
- Ensuring cyclone resistant design standards are incorporated in the rural/ urban housing schemes in coastal areas
- Implementing coastal flood zoning, flood plain development and flood inundation management and regulatory plans.
- Coastal bio-shields spread, preservation and restoration/ regeneration plans.
- There is a need for private sector participation in designing and implementing policies, plans, and standards.
- Need of Disaster Management program to be inclusive including women, civil society, and academia.

Way forward:

- For addressing natural calamities such as floods and drought, there already exist a number of plan schemes under which a lot is being done and can be done.
- State Governments need to make full use of the existing plan schemes and give priority to implementation of such schemes that will help in overcoming the conditions created by the calamity.
- Reconstruction efforts must involve rebuilding in a better way. Climate proofing in Kerala calls for structures to be built with wind- and water-resistant materials.
- People need to relocate out of harm's way. During the 2015 floods, Chennai illustrated the price of unrestricted urban development.



- Early warning is vital. Because of investments in these systems, Cyclone Phailin (2013) claimed less than 40 lives in Odisha. In Kerala, there was no timely forecast from national weather services. The State needs a reliable flood forecasting capability.
- There needs to be tougher implementation of logging and mining regulations in fragile ecologies. Deforestation worsened the effects of Kerala's floods and mudslides, as the report of the Western Ghats ecology expert panel 2011 had warned.
- Non-structural measures for flood forecasting provide early warning in flood prone areas have proved to be successful for flood management. High-tech warning systems on the ground will not be useful until the authorities, key stakeholders and communities are trained to act upon the information obtained from these facilities.
- Different stakeholders need to come together for mapping risks, vulnerabilities, and resources, engage in regular preparedness actions like drills and capacity building, develop and update emergency plans, check the availability of resources at the local level and act upon early warning intimations.

Conclusion:

- India should prepare to mitigate and deflect the destruction caused by Cyclones. We need to employ technology, strict following of command structure and most importantly the participation and cooperation of local communities in the affected area.

Q) Discuss the importance of 'Climate resilience' in the eventualities of disasters. Explain how building climate-resilient structures aid to minimise long-term cost of reconstruction in the disaster hit regions. (250 words)

Reference

Why this question:

The article discusses in detail the commendable emergency response to cyclone Fani that saved lives in Odisha, and how now the state must build climate-resilient structures to minimize long-term cost of reconstruction.

Key demand of the question:

The question expects us to elaborate on the concept of climate resilience and one must state the significance of the same in the event of the onset of Disasters like that of cyclone Fani.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Begin with what you understand by climate resilience.

Body:

Discussion should include the following aspects –

- What do you understand by Climate resilience? -Climate resilience can be generally defined as the capacity for a socio-ecological system to:
 1. absorb stresses and maintain function in the face of external stresses imposed upon it by climate change and
 2. adapt, reorganize, and evolve into more desirable configurations that improve the sustainability of the system, leaving it better prepared for future climate change impacts.
- What is climate resilient infrastructure? -Climate Resilient Infrastructure. Infrastructure by its very nature, and often by design, is vulnerable to the impacts associated with climate change. 'Climate resilient' infrastructure can safeguard and strengthen developing countries' economic growth from current and future climate impacts.
- Explain the significance of having climate resilient infrastructure.
- Discuss how it addresses vulnerability.
- Discuss the case study of cyclone Fani to justify the answer better.

Conclusion:

Conclude with a reassertion that climatic resilience is of utmost importance.

**Introduction:**

- Climate resilience can be defined as the capacity for a socio-ecological system to absorb stresses and maintain function in the face of external stresses imposed upon it by climate change and adapt, reorganize, and evolve into more desirable configurations that improve the sustainability of the system, leaving it better prepared for future climate change impacts.

Body:**Importance of Climate resilience:**

- As greenhouse gas emissions continue to rise, climate change will continue to accelerate.
- Climate change poses a serious threat to efforts to reduce global poverty. According to the United Nations International Panel on Climate Change, the changing climate will have widespread effects on human life and ecosystems. It brings heat waves, flooding, droughts, intense tropical cyclones, rising sea levels, and damages biodiversity.
- Recently study in Nature regarding Climate Change identifies India as the country with the most expected damage from rising levels of carbon dioxide.
- Climate resilience is often associated with acute events – like heavy downpours, hurricanes, or wildfires – that will become more frequent or intense as the climate changes.
- The UN Sustainable Goals Report, 2018 notes that climate change is among the key factors in rising hunger and human displacement. The World Health Organisation estimates that climate change will cause an additional 250,000 deaths per year between 2030 and 2050, due to malnutrition, malaria, diarrhoea and heat stress.
- The World Bank projects that climate change could cost India 2.8% of its GDP, and diminish living standards for nearly half the country's population, in the next 30-odd years.

Climate resilient infrastructure:

- Infrastructure by its very nature, and often by design, is vulnerable to the impacts associated with climate 'Climate resilient 'infrastructure can safeguard and strengthen developing countries' economic growth from current and future climate impacts.
- Climate resilient infrastructure is important in the light of extreme weather events , global warming leading to sea level rise, adequate disaster preparedness, prevention of economic losses, minimal disruption to society.

Climate resilient infrastructure and cost reductions:

- During intense storm surge vulnerable regions are susceptible to instantaneous damage to infrastructure. These regions need quick adoption of design standards to withstand storms, and adapt to high wind speed, heavy rain and flooding to reduce damage.
- Indian Road Congress guidelines, which govern road design, are being revised for adoption of climate resilient guidelines for roads and drainage. This is considering resilient design standards and material for road infrastructure.
- Road-building will have to be aligned with improved drainage system. Street design, mobility alignment, and public transport will have to reflect special needs during climatic stress.
- Design guidelines will also have to improve and augment drainage capacity and link it with water recharge and storage.
- Flood risk assessment and flood plain management must also be mandatory. Assessment of vulnerability can govern development along shore line and vulnerable areas to enhance protection and hedge risk.
- Case-Studies:** Hong Kong has overhauled its drainage infrastructure. It has innovatively implemented Happy Valley Underground Stormwater Storage Scheme, constructing beneath several sports fields.
- Copenhagen is using the method of "fight flooding with flooding" by lowering its parks and raising sidewalks connected to parks. During extreme downpours, the parks will turn into temporary reservoirs and storage for recharge while the streets will channelise water towards the city's harbour.

Way forward:

- It is critical to invest in climate-smart infrastructure like water management, transport, and energy because they provide critical social and economic services not only to the city but also to regions beyond that. These need to be done now because changing them requires a significant amount of lead time to design and implement
- There is a need to build the principles of climate resilience into coastal infrastructure development. This would mean incorporating them into already-existing urban infrastructure. For future infrastructure development, climate resilience will need to be built in right from the planning stage.



- Location-specific information within the larger picture of how climate change is affecting or will affect the Indian coast can help planners and administrators to build in climate resilience.
- At present there is no window for financing climate resilient infrastructure, according to the TERI study. One avenue could have been the National Mission on Sustainable Habitat, one of the eight missions initiated under the National Action Plan on Climate Change.
- Both short- and long-term, detailed design features and interventions that would need expert engineering solutions are critical to planning for new infrastructure or retrofitting/climate proofing of existing ones.
- Planning for climate resilience would need to start from the time of locating the infrastructure facilities. For instance, infrastructure for solid waste management, especially landfills, have to be located keeping in mind the projected sea level rise.
- Similarly, planning for climate resilience would mean ensuring water supply channels have back-ups for extreme weather events.

Q) Do you think It's time for the govt to consider Catastrophe bonds, insurance-linked securities with increasing frequency of natural calamities? Discuss in the light of recent disasters that stuck India. (250 words)

Reference

Why this question:

The question is intended to evaluate the need for disaster management in terms of the policies directed and aimed at insuring the regions prone and often affected by disasters like that of Odisha which was recently effected by cyclone Fani causing devastation of the State in terms of loss of life, economy, biodiversity etc.

Key demand of the question:

The answer must discuss the importance of insurance with respect to effective disaster management.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In a few introductory lines appreciate the need for Insurance aspect in disaster management.

Body:

- Explain what are Catastrophe bonds? – A typical CAT or cat bonds has a maturity of three years during which the period should be a tightly defined disaster. CAT is like junk bonds in terms of riskiness and hence the high yield expected.
- Discuss in what way insurance-linked securities with increasing frequency of natural calamities can help and provide better management aspects post disaster to restore life and economy of a region to its normalcy.
- Suggest solutions and lessons from countries across the world using such principles in Disaster management.

Conclusion:

Conclude with way forward.

Introduction:

- A catastrophe bond (Cat bond) is a **high-yield debt instrument** designed to raise money for companies in the insurance industry in the event of a devastating natural disaster. A CAT bond allows the issuer to receive funding from the bond only if specific conditions occur such as an earthquake or floods.
- CAT bonds have **short maturities not exceeding three to five years**. The primary investors in these securities are hedge funds, pension funds, and other institutional investors.

Body:

Need for Insurance aspect in disaster management:

- The economic cost of disasters averages \$250 billion to \$300 billion annually, according to the 2015 **United Nations Global Assessment Report on Disaster Risk Reduction**.
- Considering that only about 30% of the damage from natural disasters are insured, such losses can impose severe financial burden on governments.



- In developing countries, governments may have to divert state funds, including those earmarked for development projects, to disaster relief and rebuilding efforts.
- The catastrophe bonds, a debt instrument allows governments to tap the capital market and raise money from investors willing to bet against the likelihood of a disaster occurring in a particular place during a particular time period.

It is high time that such instruments are introduced in India so that relief and reconstruction work in areas affected by natural disasters goes on unimpeded and are not stalled for only want of capital. Rebuilding from floods will only become more costly for taxpayers in the years ahead. Many analysts expect large, unpredictable storms to become more frequent as seas get warmer.

Features of Catastrophe Bond:

- CAT bonds have short maturities not exceeding three to five years.
- The primary investors in these securities are hedge funds, pension funds, and other institutional investors.
- Catastrophe bonds are used by property and casualty insurers as well as reinsurance companies to transfer risk to investors.
- These bonds provide insurance and reinsurance companies with another method to defer risk associated with underwriting policies.
- In return, institutional investors receive a higher interest rate than most fixed-income securities over the life of the bond, which could have a maturity of up to five years.
- CAT bonds are only paid to the insurance company if a triggering event happens.

Advantages and Disadvantages:

The upside

- Cat bonds can be an effective tool to address the risk of loss and damage from climate change because it allows vulnerable countries to raise capital that can be disbursed quickly in the event of a catastrophe.
- This is because cat bonds can be structured to allow payouts as soon as pre-defined trigger events occur.
- Cat bonds can also provide multi-year coverage to the issuing governments.

The downside

- There are challenges for the more widespread use of cat bonds because of their high transaction costs, long structuring period that can take months, and strict terms and conditions compared with traditional risk financing, such as insurance.
- In addition, cat bonds do not always meet countries' needs, as governments may prefer longer term protection, while investors tend to prefer shorter term bonds.
- Another obstacle is that cat bonds are usually available only to institutional investors, limiting their market reach.

Way forward:

- There is no reason why governments themselves cannot issue CAT.
- For example, Odisha is prone to periodic cyclone with the recent Fani cyclone wrecking havoc on properties though, thanks to high preparedness, loss of human lives was minimal.
- Odisha government itself can take the initiative and issue Odisha and cyclone-specific CAT.
- A longer duration bond would be beneficial to it i.e., instead of a three-year bond if it issues a five-year bond, the chances of cyclone hitting coastal Odisha is higher and hence the success of the exercise (loss mitigation) greater.

Q) Numerous types of damages are necessary to be measured for undertaking effective damage assessment during disasters. Discuss. (250 words)

Reference

Why this question:

The question is to evaluate the concept of damage control in disaster management.

Key demand of the question:

Analyse in detail the need for damage control in effectively mitigating disasters and managing the disasters effectively.

**Directive word:**

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:**Introduction:**

In a few introductory lines highlight the recent cyclone Fani that struck the East coast necessitating us to analyse the need for disaster control and damage control.

Body:

In brief discuss –

- The example of Odisha's successful disaster management policy is a template that other vulnerable Indian states as well as other parts of the world should closely follow.
- What are the pathways to effectively control and manage disasters? – discuss the need of understanding the types of damages- Infrastructure; Electricity and telecommunications, need for restoring damaged highways and district roads, health system etc.
- Use the Odisha cyclone as a case study to best explain the answer.
- Highlight the learnings, discuss what should be the way forward.

Conclusion:

Conclude by reasserting that understanding disasters is of prime importance to resolve and fix them..

Introduction:

- The eastern coast of India has had to bear the brunt of nature's fury yet again. Cyclone Fani hit Odisha recently, and though its menace as a storm was downgraded from "extremely severe" to "very severe" a few hours after it made landfall, it has left a trail of destruction that should make us revisit what we mean by "preparedness".

Body:

- Cyclones are among the most dangerous and most destructive natural disasters that can occur. They have been responsible for about 1.9 million deaths worldwide over the last two centuries, and it is estimated that 10,000 people are killed each year by these storms. Cyclones tend to do the most damage in coastal areas, where they have been known to alter the landscape and remove forest canopy. 13 coastal states and Union Territories in the country are affected by Tropical Cyclones (TCs).

Cyclones bring devastations and damages of various types:

- Life:
 - Cyclones often cause loss of life, heavy damages in built environments, and have negative effects on shipping,
 - The death toll due to cyclone Fani rose to 64 with 21 fresh deaths confirmed, nine days after the 'extremely severe' cyclonic storm devastated coastal Odisha.
- Property:
 - The strong winds of cyclones can cause damage over an area of 25 km in smaller systems and up to 500 km in larger systems. Winds have been known to destroy smaller buildings and knock out power for thousands of people.
- Infrastructure, Electricity and telecommunications:
 - Infrastructure facilities like ports, airports are at the highest risk of damage. The casualties include that of the electricity and telecom infrastructure too rendering the places devoid of communication.
- Fisheries and tourism:
 - Statistics show that the global average annual losses from cyclones and storm surges are estimated at US\$ 80 billion.
- Temperature:
 - Tropical cyclones can quickly change the environment of the affected areas. They can bring warmer air into hot places. This makes the atmosphere feel very sticky and muggy and rises the temperature dramatically. This can cause heat strokes and other heat related illness to children and the elderly after the storm which is not good.
- Storm surge:
 - Potentially disastrous surges occur in coastal areas with low-lying terrain that enables inundation. The storm surge is typically the most damaging effect of cyclones, historically resulting in 90 percent of tropical cyclone deaths.



- When combined with strong winds, storm surges can produce massive waves that can cause inland flooding and destruction.

Measures to be taken:

- Effective coordination between the governments at the Center and state to take up the rescue and relief work immediately.
- There is a need of harmonizing the national and local level disaster resilient bylaws, land use zoning, resource planning, early warning system establishments and technical competence.
- Restoration of the basic necessities like electricity, water supply and telecom facilities at the earliest.
- **Assessment of houses damaged:** as most of the affected are left homeless, they will be vulnerable to all kinds of dangers. An effective assessment of the damage can help the government to plan its efforts better.
- **Construction of disaster resilient houses** in cyclone prone areas must be mandated to avoid the recurrent expenditures and provide a safe shelter to the people.
- The government should take commonalities from success stories and institutionalize it. For example, Built Back Better Program of Gujarat government after 2001 earthquake.
- Disaster Risk Reduction should be an important aspect of global poverty reduction initiatives.
- Moving from a risk blind approach to a risk-informed decision when it comes to investments.
- There should be a Disaster Risk Audit for the future developmental project for both public and private entities.
- Disaster Risk Reduction program should be more **people-centric**.
- There is a need for **private sector participation** in designing and implementing policies, plans, and standards.
- Need of Disaster Management program to be inclusive including women, civil society, and academia.
- State governments should increase their engagements in scientific research institution for a better formulation of policies.

Conclusion:

- Natural disaster comes without warning. India should prepare to mitigate and deflect the destruction caused by Cyclones. India needs to employ disaster resilient technology, strict following of command structure and most importantly the participation and cooperation of local communities in the affected area.

Q) Evaluate the role of Women in disaster management. Justify your answer with suitable examples. (250 words)

The hindu

Why this question:

The article discusses in detail how women can play a role centric to managing disasters. Recently a project named 'swayamsiddha' in Odisha's Ganjam district was initiated wherein women will be trained in evacuation, rescue, restoration and rehabilitation during natural calamities, especially cyclones.

Key demand of the question:

Discussion should be about vital role that women can play in managing disasters.

Directive word:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In a few introductory lines highlight how Multi-stakeholder engagement is a fundamental element to managing disasters.

Body:

Many international strategies and frameworks have identified women as one of the key stakeholders in any disaster management efforts due to many reasons. Women play a significant role in disaster response and recovery stages specifically at household level. However, their roles in organizational decision making, particularly in disaster risk governance, is limited due to uncovered reasons. This has created equity and equality issues among one of the most affected communities from hazards.

The answer must attempt to explore and emphasize the role of women in disaster risk governance, risk governance efforts and overall disaster management and to uncover the barriers that limit their role in disaster risk governance.

Use examples from the article – Kerala floods, Odisha cyclone etc. to justify your answer.



Conclusion:

Conclude with what should be the way forward.

Introduction:

- India is one of the most vulnerable countries to natural disasters. The country has faced a number of natural disasters in the last decade which have claimed hundreds thousands of precious lives and heavy economic losses. It has been observed that more than half of the victims in the past disasters were women.
- Women are seen in their traditional role of home-makers, but their ability to take on managerial roles in disaster risk management cannot be underestimated.

Body:

Factors determining the role of women in Disaster management:

- **Patriarchal culture:** Many researchers have identified patriarchal culture as a major barrier that prevent or limit the role of women as decision makers or leaders. Some societies accept that wives and daughters as subordinate to husbands and
- **Religious believes:** Religious believes influence the role of women in public engagement and decision For example, Protestantism promotes and accepts women as religious leaders compared with Catholicism and Orthodox Christianity which limit their involvement
- **Structure of the family:** Studies found that size of the family and its composition similarly affect the decision making power of women in households specifically in developing countries
- **Household work load:** Traditional societies expect the role of women to engage only in family work related to child baring, caring and kitchen works
- **Level of education:** Level of education is an individual characteristic. According to Hora, lack of adequate level of education among women in Ethiopia was one of the major factor that prevent women participating in leadership and decision making role
- **Policies and legislations:** There was a target of 30% women representation in leadership positions endorsed by the United Nations Economic and Social Council in 1990 and reaffirmed in the Beijing Platform for Action in However, the reality is far more behind from its expected level.
- **Household income:** Poor socio-economic status affects lower level of engagement of women in decision making at house hold level
- **Political environment:** Women in political positions are important not because of its strategic importance, but for the benefits and its impact

Role played by women in disaster management:

- Although women's social, economic and political position in society makes them more vulnerable to natural hazards, they are not helpless victims.
- Women are important agents for change and need to be further strengthened as such.
- Recognizing and mobilizing their skills and capacities as social force and channelling it to enhance efforts to protect their safety and that of their communities and dependents is a major task in any disaster reduction strategy.
- Indian women are the backbone of the rural subsistence economy. Their respective role in family which is of productive nature to a large extent makes the family and society sustainable but it is not acknowledged by and large.
- Women's work in agriculture is often seen as an extension of their domestic responsibilities, rather than a separate economic activity. In rural areas which are more vulnerable to natural hazards since rural population depend more on the natural resource base for all aspects of life. Securing food, water and fuel are key community concerns, which are predominantly taken care of by women.
- There are many examples of women's informal community involvement in disaster reduction, but women are still largely excluded from formal planning and decision-making and need to be empowered to do so
- This is essential to ensure effective disaster reduction policies. If some decision-making is shifted Emergency relief and aid processes particularly disadvantage women who must organize food provision, shelter, and child and family care according to chaotic aid-delivery systems and entitlement procedures that rarely take their work or opinions into account.
- Although women commonly organize themselves to distribute supplies, establish shelter, and pool labour and resources to create community support services to meet basic family needs in the emergency period, their efforts are often invisible or go unacknowledged.



Challenges faced:

- Indian women face a number of hurdles in applying and qualifying for aid after a disaster this primarily because of illiteracy or limited literacy, limited access to information on how to apply and navigate the bureaucracy in addition to the eligibility requirements.
- In majority of instances it has been found that relief and rehabilitation schemes favour men over women, where priority has been given to property owners, tenants of record, bank-account holders, and perceived heads of
- Women's economic condition becomes critical because in large number of cases employment assistance concentrates on workers in the formal economy and business aid is awarded to formal enterprises.
- Post disaster aid and investments generally undermine women's collective capacity to surmount day-to-day problems adversely affecting the economic base of women.
- There is no consideration for women's productive and reproductive activities as far as conventional disaster response in India is concerned, It is not at all reflect how important housing and informally held resources and assets are to women's
- They have to face loss of workspace, tools, equipment, inventory, supplies and markets or even domestic violence

Way forward:

- To identify the barriers that prevent their role in decision making, governance and any Disaster management efforts.
- Based on the literature review, following barriers are identified socio-cultural factors, socio-economic factors, individual characteristics and legal and institutional factors.
- Gender issues must be urgently and effectively integrated into disaster research, planning, and organizational practice.

Conclusion:

- It has been noticed that women's groups that participate in emergency relief, resettlement, and reconstruction efforts following a natural disaster acquire significant knowledge and expertise that can greatly benefit communities that subsequently experience similar crises.
- When mechanisms are established for promoting the transfer of this knowledge from community to community, poor women are enabled to come out of their homes and form groups to assess their situation, organize, and participate in the range of decisions and programs.
- When disasters strike, the opportunities to decrease women's marginalization arise early on, when norms of social control and male-dominated family structures are temporarily disrupted and weakened by the chaos that ensues.
- If affected women can meet and benefit from the experiences of other women who have managed to deal successfully with disaster-related issues, much valuable time can be saved and mistakes avoided.

Case Study:

- *In Maharashtra and Gujarat states of India a number of non governmental organizations involved who encouraged local women to participate in relief and recovery operations after earthquake occurrence.*
- *They made various groups to build the skills and capacities required to train the members for post disaster recovery to long-term development.*
- *The remarkable work by an Ngo called **Swayam Shikshan Prayog** (translated as "learning from one's own and others' experiences") which had more than 15 years experience of working for women and poor communities in rural India proved the capability of women in handling disasters.*
- *In 1993 Latur Maharashtra earthquake, they contributed in repairing and strengthening of damaged houses. In 2001 Bhuj, Gujarat earthquake the grassroots women's groups from Maharashtra travelled to this neighbouring state to share experiences and pledge long-term assistance.*



Q) What is Global Facility for Disaster Reduction and Recovery ? Discuss its objectives. Also explain the role played by India. (250 words)

Reference

Why this question:

Recently India has been unanimously chosen as co-chair of the Consultative Group (CG) of Global Facility for Disaster Reduction and Recovery (GFDRR) for the fiscal year 2020.

Key demand of the question:

The answer must discuss in detail is Global Facility for Disaster Reduction and Recovery and its objectives along with the significant role played by India in this direction.

Directive word:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer

Introduction:

write a few introductory lines about is Global Facility for Disaster Reduction and Recovery.

Body:

Answers must discuss the following aspects :

- What is it? It is a grant-funding mechanism, managed by the World Bank, that supports disaster risk management projects worldwide.
- Objectives: GFDRR is a global partnership that helps developing countries better understand and reduce their vulnerability to natural hazards and climate change.
- Present status: It is presently working on the ground with over 400 local, national, regional, and international partners and provides knowledge, funding, and technical assistance.
- Explain the role India has to play with respect to it.

Conclusion –

Conclude with way forward.

Introduction:

- Global Facility for Disaster Reduction and Recovery (GFDRR) is a global partnership that helps developing countries better understand and reduce their vulnerability to natural hazards and climate change.
- It is a grant-funding mechanism, managed by the World Bank, that supports disaster risk management projects worldwide. India has been unanimously chosen as co-chair of the Consultative Group (CG) of Global Facility for Disaster Reduction and Recovery (GFDRR) for the fiscal year 2020.

Body:

- GFDRR contributes to the **implementation of the Sendai Framework for Disaster Risk Reduction** by helping countries to integrate disaster risk management and climate change adaptation into development strategies and investment programs and recover from disasters quickly and effectively. India became a member of CG of GFDRR in 2015.
- Role of GFDRR: It provides technical assistance, capacity building, and analytical work to help vulnerable nations improve resilience and reduce risk.

Objectives:

- To mainstream disaster reduction and climate change adaptation (CCA) in country development strategies, and
- To foster and strengthen global and regional cooperation among various stakeholders under the International Strategy for Disaster Reduction (ISDR) system.
- To help developing countries better understand and reduce their vulnerability to natural hazards and climate change.

Role played by India:

- The Consultative Group (CG) is GFDRR's primary decision-making and advisory body.
- This is the first time that India has been provided with the opportunity of co-chairing the CG meeting of GFDRR.
- The opportunity will give India a chance to work with the member countries and organizations of GFDRR with a focused contribution towards advancing the disaster risk reduction agenda during the course of the year.
- India's objective is to pursue a focused agenda and develop synergies with ongoing work streams of GFDRR. Disaster Resilient Infrastructure (DRI) will be a central theme of engagement with the GFDRR partners and stakeholders.

**Conclusion:**

- India is prone to many natural disasters which has huge socio-economic impacts. The opportunity to do such a role gives India to build her capacity to reduce vulnerability to natural hazards and climate change better.
- India can set an example by understanding disaster risk, strengthening disaster risk governance to manage disaster risk, investing in disaster risk reduction for resilience and building back better in recovery, rehabilitation and reconstruction.

Q) “There have been numerous fire accidents this year causing significant loss of life and property. While the government and other regulatory bodies have prescribed norms and fire safety measures, implementation and vigilance continue to be grave concern.” Critically analyse. (250 words)

The hindu

Why this question:

At least 20 students were killed, either due to suffocation or falling off the windows in an attempt to escape fire in a coaching centre blaze, in Surat yesterday. Such a disturbing incident necessitates us to take a look at the fire safety aspects of the country and the lacunae therein.

Demand of the question:

The answer must discuss the issues involved and causes for such recurrent fatal fire incidents and the need for overhaul of measures and norms in place to overcome such disasters.

Directive:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

The answer to the question must have the following parts:

- Quote the recent incidences that were witnessed.
- Discuss how such fatal fire incidents necessitates a relook at the current rule, regulations and norms that are almost defunct in practice and corrective measures for the same.
- Discuss who all are vulnerable to it, stakeholders involved.
- What needs to be done to overcome the alarming issue?
- Discuss the institutional mechanisms, health and disaster management aspect of both life and property.

Conclusion:

Conclude with what should be the way ahead.

Introduction:

- In India, although there are many rules and regulations, codes and standards related to fire safety, these are seldom followed. Laxity in fire safety measures caused major fires in many buildings.
- A recent fire incident at a coaching centre in Surat resulted in the death of 22 students. Such a disturbing incident necessitates us to take a look at the fire safety aspects of the country and the lacunae therein.

Body:**Fire Accidents in India:**

- According to National crime records bureau figures 17,700 Indians died and 48 people every day due to fire accidents in 2015.
- Of those who died, 62% were women.
- Maharashtra and Gujarat, the two most highly urbanised states, account for about 30% of the country’s fire accident deaths.
- According to India Risk Surveys 2018, outbreak of fire poses risks to business continuity and operations and ranks India at 3rd position in fire incidents, especially in Northern and Western regions of India.

Lacunae in Fire Safety in India:

- Violation of safety norms and lack of standardisation and regulation is a major cause of fire accidents, as large scale construction of false roofs in commercial buildings and multiplexes is against the national building construction code.



- High rise buildings are more prone to fire accidents as they lack an adequate in-built fire protection system that makes salvaging operations difficult.
- Poorly stored goods, even though they are not flammable, helps to spread fire and hinder fire fighters gain access to the seat of the fire or reduce the effectiveness of sprinkler systems.
- Unclear provisions of fire safety audit in terms of scope, objective, methodology and periodicity of a fire safety audit.
- Lack of adequate resources, preparedness and poor fire services fail to ensure fire safety cover to the population.
- Lack of awareness about the safety arrangements before purchasing or hiring a flat in an apartment or before starting an institution.
- Faulty Wiring: PUF (polyurethane foam) used for plastic insulation carries a high risk of accidental fire as most of the times it is exposed to electrical wiring which on becoming heated due to overloading or short circuit catches fire immediately.

Measures needed:

- Modernisation of Fire safety equipment: the government should provide financial support and assistance in augmenting and modernising the fire departments
- Proper designing of electrical fittings and regular maintenance of wiring (at least once in a year).
- Building awareness among citizens about fire prevention and protection measures by organising fire fighting workshop once in six months in localities/Mohallas/schools with the involvement of local councillors/elected representatives.
- Fire service departments should audit critical fire prone installations (like high rise buildings, multiplexes in congested areas) periodically (once in six months) and take appropriate actions against erring establishments.
- Proper demarcation of entry and exit points in crowded buildings, installation of fire fighting equipment and their regular maintenance, periodic renewal of No-objection certificates by building owners in order to ensure fire preparedness.

Way forward:

- Fire service is a state subject and has been included as municipal function in the XII schedule of the Constitution. The municipal corporations and local bodies are responsible for providing fire services in many states.
- All State governments should require mandatory compliance with such safety features for any institution handling patients or giving care.
- Certification of facilities through third-party audit should be made compulsory to eliminate conflicts of interest involving official agencies.
- The institutions should also be insured for the highest levels of public liability.
- At a broader level, governments must shed their indifference and work to make all spaces safe.
- In private, public or commercial buildings, official agencies tend to favour tokenism rather than high standards for the safety of occupants and visitors.
- They are ever-willing to “regularise” deviations in construction over time. It is time to fix responsibility for deadly accidents on a single official agency.

TOPIC: Linkages between development and spread of extremism; Role of external state and non-state actors in creating challenges to internal security.

Q) What do you understand by online extremism ? Discuss the relevance of ‘Christchurch call to action’ recently seen in news to combat the same. (250 words)

Reference

Why this question:

India recently joined the global initiative to combat extremism online

The initiative ‘Christchurch call to action’ has been named after the New Zealand city where 51 people were killed in an attack on mosques.

Key demand of the question:

The answer must first address the concept of online extremism and then discuss broadly the genesis, objectives and significance of ‘Christchurch call to action’.

**Directive word:**

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:**Introduction:**

In a few introductory lines discuss the relevance of the question. State recent terror attacks that took form of online extremism.

Body:

- Define online extremism – Online Extremism can be defined as advocating support of groups or causes that in any distribution of opinion would lie on one of the “tails”.
- The primary goal is to create online social network of unaffiliated sympathizers, propagandists, fighters and recruiters to create a thriving online extremist community (OEC).
- Then move on to discuss the genesis and objectives of the ‘Christchurch call to action’ – the initiative outlines collective, voluntary commitments from governments and online service providers intended to address the issue of terrorist and violent extremist content online and to prevent the abuse of the internet.
- The Christchurch attack highlighted the urgent need for action and enhanced cooperation among the wide range of actors with influence over this issue, including governments, civil society, and online service providers, such as social media companies, to eliminate terrorist and violent extremist content online.

Conclusion:

Conclude with what should be the way forward.

Introduction:

- Online Extremism can be defined as advocating support of groups or causes that in any distribution of opinion would lie on one of the “tails”. The primary goal is to create online social network of unaffiliated sympathizers, propagandists, fighters and recruiters to create a thriving online extremist community (OEC).
- India has joined a major global initiative to combat terrorism and extremism online and secure the internet. The initiative, ‘**Christchurch call to action**’, has been named after the New Zealand city where 51 people were killed in an attack on mosques.

Body:**Genesis of ‘Christchurch call to action’:**

- The Christchurch attack highlighted the urgent need for action and enhanced cooperation among the wide range of actors with influence over this issue, including governments, civil society, and online service providers, such as social media companies, to eliminate terrorist and violent extremist content online.
- The gathering in Paris has been organized by France and New Zealand. Amazon, Facebook, Google, Microsoft and Twitter also signed on to the document, pledging to work more closely with one another and governments to make sure that their sites do not become conduits for terrorism.

Highlights of Declaration:

- The initiative outlines collective, voluntary commitments from governments and online service providers intended to address the issue of terrorist and violent extremist content online and to prevent the abuse of the internet.
- All action on this issue must be consistent with principles of a free, open and secure internet, without compromising human rights and fundamental freedoms, including freedom of expression.
- It also recognises the internet’s ability to act as a force for good, including by promoting innovation, economic development and fostering inclusive societies.
- It encourages media outlets to apply ethical standards when depicting terrorist events online.
- Avoid amplifying terrorist and violent extremist content, with responsible coverage of terrorism and violent extremism.
- It was also decided to implement immediate and effective measures to mitigate the specific risk that terrorist and violent extremist content is disseminated through live-streaming, including identification of content for real-time review.



The documents draw in the online service providers to commit to:

- Take transparent, specific measures seeking to prevent the upload of terrorist and violent extremist content and to prevent its dissemination on social media and similar content-sharing services.
- Provide greater transparency in the setting of community standards or terms of service, including by:
- Outlining and publishing the consequences of sharing terrorist and violent extremist content;
- Describing policies and putting in place procedures for detecting and removing terrorist and violent extremist content.

Conclusion:

- The reach of internet and social media has had both positives and negatives. The Christchurch call looks into dealing with making internet more user friendly and eliminate the violent extremism from proliferating by global cooperation.

Q) What is the central ideology of Maoist insurgents in India ? Critically analyse also suggest solutions to address the issues associated. (250 words)

Reference

Why this question:

The question is in the backdrop of recent attacks witnessed in Arunachal Pradesh where Tirong Aboh, the sitting MLA from Khonsa West assembly constituency, along with 10 others have been killed in an ambush by unidentified gunmen in Tirap District

Demand of the question:

The answer must explain how the decades-old insurgency is a major internal threat facing the world's largest democracy and one must narrate in detail the central ideology of such Insurgency.

Directive:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

Known in India as the Naxalites or Naxals, the Maoists are considered to be left-wing extremists who broke away from mainstream communism on ideological issues like the decision by the main parties to join the electoral process.

Body:

Body of the answer should capture:

- What is their central idea ?
- When was the movement formed?
- Who do the Naxalites represent?
- What attracts the population to the movement?
- Who is their target?
- What steps has the government taken so far to fight the Naxalites?
- What measures are required still to curb the menace of Maoism.
- Discuss some specific case studies – North East region to justify better.

Conclusion:

Conclude with what should be the way ahead.

Introduction:

- The Naxalite–Maoist insurgency is an ongoing conflict between Maoist groups known as Naxalites or Naxals and the Indian government. Maoism is a form of communism developed by Mao Tse Tung. It is a doctrine to capture State power through a combination of armed insurgency, mass mobilization and strategic alliances. Since its inception at Telangana in the 1930s, the insurgent movement has become one of the major threats to the democratic structure of the Indian nation.
- Recently, Tirong Aboh, the sitting MLA from Khonsa West assembly constituency, along with 10 others were killed in an ambush by unidentified Maoist gunmen in Tirap District.

**Body:**

The central theme of Maoist ideology:

- The central theme of Maoist ideology is the use of violence and armed insurrection as a means to capture State power.
- 'Bearing of arms is non-negotiable' as per the Maoist insurgency doctrine.
- The Maoist ideology glorifies violence and the 'Peoples Liberation Guerrilla Army' (PLGA) cadres are trained specifically in the worst forms of violence to evoke terror among the population under their domination.
- However, they also use the subterfuge of mobilizing people over issues of purported inadequacies of the existing system, so that they can be indoctrinated to take recourse to violence as the only means of redressal.
- The Maoists also use propaganda and disinformation against State institutions as other components of their insurgency doctrine.

Spread:

- The States of Chhattisgarh, Jharkhand, Orissa and Bihar are considered severely affected. The States of West Bengal, Maharashtra and Andhra Pradesh are considered partially affected. The States of UP and MP are considered slightly affected. Together, the affected area is called 'Red Corridor'.
- Strategy: The Maoists wish to keep the population in their strongholds cut-off from the mainstream milieu. The schools are attacked because education promotes a spirit of enquiry among the local population and also equips children with skills for alternative sources of livelihood. These developments are looked upon by the Maoists as potential threats to their very existence and their outdated ideology. The Maoists also destroy infrastructure like roads and telecom network to keep populations isolated from mainstream India.

Government's current measures:

- After identifying the Naxalites as the most serious threat to the Indian state, the central government has set up a special 10,000-strong Combat Battalion for Resolute Action (Cobra) to fight them.
- The government of India's **National Policy and Action Plan**, with its emphasis on security and development, is making an impact. Under this plan, as many as 307 fortified police stations were constructed in Naxal-hit areas in last three years.
- Besides, 1,391 km roads were constructed in some of the most difficult areas under the road requirement plan phase-I. Additional roads were approved for construction in nine Naxal-hit areas as well
- The reduction in Naxalite activity is mainly attributable to Operation Green Hunt, which was launched in 2009 and is undertaken jointly by the security forces of the central and state governments to eliminate Naxalites.
- Operation 'SAMADHAN' stands for Smart leadership, Aggressive strategy, Motivation and training, Actionable intelligence, Dashboard Based KPIs (key performance indicators) and KRAs (key result areas), Harnessing technology, Action plan for each theatre, and No access to financing.
- The MHA has suggested the use of trackers for weapons, and bio-metrics in smart guns.
- Unique Identification number (UID) for Gelatine sticks and explosives.
- At least one UAV or Mini UAV for each of the Central Armed Police Forces (CAPF) battalions deployed in the Maoist hotbed.
- More helicopter support for operations. Helicopters to be used to rush in supplies and reinforcement. Increased number of flying hours.
- Joint Task Forces for operations along inter-State boundaries to be set up. Better inter-state coordination and intelligence sharing.
- 400 fortified police stations to be set up in Naxal belt.
- Resumption of Left Wing Extremism (LWE) – specific schemes such as SRE, SIS, IAP/ACA, CIAT schools.
- Prevention of Money Laundering Act (PMLA) to be reviewed to ensure effective choking of fund flow to LWE groups.
- Fast tracking building infrastructure, with a focus on solar lights, mobile towers with 3G connectivity, and road-rail connectivity.
- Indian Army or specialized forces – such as Greyhounds – to train forces to take on Naxals.
- Forces should be more proactive and aggressive in owning operations, rather than being reactive.
- Apart from the construction of roads, mobile towers, setting up of banks, post offices, Kendriya Vidyalayas, etc, the most significant achievement has been in poverty reduction. A recent study published in a Brookings blog says that by 2022, less than 3 per cent of Indians will be poor and that extreme poverty could be eliminated altogether by 2030.



- Choking the financial funding of Naxals forms the foundation of the new strategy. Evidence shows that demonetisation curbed naxal funding
- The security-related expenditure (SRE) scheme, special infrastructure scheme (SIS), integrated action plan (IAP) and a few other schemes will be extended for a few more years if the finance ministry's approval is received.

Approach which India can follow in future:

- One of such promising avenues can be bringing the rebels to the negotiation table by creating a holistic process of disarming the rebels, integrating them into society, and ensuring that the socio-economic conditions are improved.
- International experience: The Colombia peace deal can provide a skeleton for developing such an approach. The Colombia peace process was signed between the Colombian government and the Revolutionary Armed Forces of Colombia-People's Army (FARC-EP), which ended the approximately five-decade-old civil war
- Comprehensive rural reforms would be a positive step toward addressing the socioeconomic issues behind Naxalism.
- Comprehensive rural reform for India would include land access and use reform such as proper implementation of Schedule 5 and 9, a special rural land legal system to resolve land conflicts between government officials and tribals, and improving laws for equitable access to forest produce
- There is a need to empower local governments giving adequate powers to Gram Sabha and building confidence in the people of government's developmental agenda

Conclusion:

- It is imperative that government instead of being reactionary goes after them proactively. But it has herculean challenge of doing it in democratic way. It is obvious that there is and should be two pronged approach to counter it, one at ideological level and other at physical level. In former case, good governance by government and delivering good results in fields of Education, Health and overall standard of living will be instrumental.

Topic: Security challenges and their management in border areas.

Q) Evaluate the major shortcomings in India's national security architecture. Suggest measures to overcome these shortcomings with respect to the key recommendations made by D.S. Hooda's document. (250 words)

The hindu

Why this question:

The article highlights the urgent need for a blueprint for national security strategy for India.

Key demand of the question:

The answer must discuss in detail the major shortcoming of National security in India. What measures can be taken to address these issues highlighting the need for a road map designing the national security agenda.

Directive word:

Evaluate – When you are asked to evaluate, you have to pass a sound judgement about the truth of the given statement in the question or the topic based on evidences. You have to appraise the worth of the statement in question. There is scope for forming a personal opinion here.

Structure of the answer

Introduction:

write a few introductory lines on the importance of national security.

Body:

Answer should have the following dimensions covered:

- Discuss the need for formulating a national security strategy for India.
- What are the major shortcomings in India's national security architecture that must be addressed?
- key national security institutions and revamp their functioning.
- Role of National Security Adviser with respect to accountability and legal formality.
- Significant features of Hooda document.
- Way forward.

Conclusion –

Conclude with significance and what should be the way forward.



MISSING THE BIG PICTURE

India is struggling with the lack of a roadmap, planning expertise and major defence reform

1) National Security Strategy (NSS)

Status: Yet to be completed, though the government is believed to be working on a draft NSS

2) Chief of Defence Staff

Status: Not appointed despite recommendation by a GoM in 2001 and the Shekatkar committee in 2016

3) Integrating the armed forces into

theatre commands

Status: Shekatkar committee recommended creating three integrated commands to replace the existing 17 separate commands. Yet to be implemented

4) Defence planning to harmonise budgets, spending, priorities

Status: A defence planning committee was set up under NSA

Ajit Doval on April 18. A permanent body, it includes defence and foreign secretaries, three service chiefs

5) Reducing wastage, redeployment of personnel

Status: The government is redeploying 57,000 personnel as per the Shekatkar Committee directive. To be completed by December 2019

Introduction:

- A National Security Strategy or Policy (NSS or NSP) is a key framework for a country to meet the basic needs and security concerns of citizens, and address external and internal threats to the country. It is pertinent to ask, even today, whether India thinks about strategic affairs in a systematic, consistent and coherent manner or whether its national security runs on ad hoc arrangements and 'raw wisdom'. Human security involves basing the understanding of security on the needs of citizens, not just those of the government/State.

Body:

The **major shortcomings** in India's national security architecture are:

- The National Security Council (NSC) set up in 1998 almost never meets, primarily because it is an advisory body, with the Cabinet Committee on Security being the executive body.
- If the NSC is to be made more useful, the government's allocation of business rules should be amended to give more powers to the NSC and its subordinate organisations, such as the Strategic Policy Group.
- Even though the National Security Adviser (NSA) plays a vital role in national security, he has no legal powers as per the government's allocation of business rules.
- The C. Pant Task Force in the late 1990s had recommended the creation of an NSA with the rank of a Cabinet Minister.
- Over the years, the NSA's powers have increased, even though he is not accountable to Parliament. The institution of the NSA today requires more accountability and legal formality.
- India spends close to \$50 billion annually on defence and yet there are serious concerns about the level of our defence preparedness. India might be ill-equipped to fight the wars of the modern age
- There is a little conversation between the armed forces and the political class, and even lesser conversation among the various arms of the forces
- One of the most serious lacunas in our defence management is the absence of jointness in the Indian armed forces.



- Our doctrines, command structures, force deployments and defence acquisition continue as though each arm is going to fight a future war on its own.

Key recommendations made by D.S. Hooda to overcome these shortcomings:

- Hooda's National security strategy document defines security in an out-of-the box and inclusive manner. The document summarises the reforms under 5 heads:
 - Assuming our rightful place in global affairs.
 - achieving a secure neighbourhood
 - peaceful resolution of internal conflicts
 - protecting our people
 - strengthening our capabilities
- On the issue of military jointmanship, it recommends that "the three services should undertake a comprehensive review of their current and future force structures to transform the army, navy and air force into an integrated warfighting force."
- It argues that it would take "a cultural change in the way the DRDO is currently operating" to improve domestic defence production.
- On the Kashmir question too, the document seems to differ with the incumbent government's muscular policy, and General Hooda's words should be a wakeup call for everyone: Killing terrorists is an integral part of military operations to ensure that the state does not descend into chaos.
- While discussing emerging national security threats, the document differs with the present government's decision to set up a Defence Cyber Agency instead of a Cyber Command as was originally recommended.

Conclusion:

- Serious efforts are required for countering radicalisation. There is a need to initiate structured programmes that bring together civil society members, family groups, educationists, religious teachers and even surrendered terrorists in an effort to roll back radicalisation.
- There is an urgent need for thinking about national security and strategy more systematically, consistently and comprehensively.

Topic: Challenges to internal security through communication networks, role of media and social networking sites in internal security challenges, basics of cyber security; money-laundering and its prevention.

Q) Cyber-frauds have grown in terms of sophistication and reach in the recent times with increasing influence of social media. Critically analyse. (250 words)

Livemint

Why this question:

The article brings us highlights of a report- Current State of Cybercrime – 2019" white paper, released by RSA Security, that states cyber criminals are increasingly relying on social media platforms to sell stolen identities, credit card numbers and other ill-gotten gains. Fraud from mobile apps rose 680% between 2015 and 2018.

Key demand of the question:

Analyse in detail the issues around cyber security, the root causes of Cyber fraud and what needs to be done to handle the menace.

Directive word:

Critically analyse – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

In a few introductory lines discuss the highlights of the report.

Body:

- First explain what you understand by cyber frauds – cyber fraud is any crime that is committed with the use of a computer or to computer data. This can look like many things, such as: Identity theft. Stolen bank account numbers.



- Due to the incredibly rapid advances in technology and electronic communications, a steadily increasing proportion of total fraud is being perpetrated with the use of computers, the Internet, and sophisticated software and programming techniques.
- Discuss the impact, reach and expanse – not only are individuals victimized by cyber fraud, but companies suffer from the costly effects of cyber fraud within their networks.
- Explain while some of the detection and prevention methods for managing these cyber risks will be technological, a human element in the fight against cyber fraud will always be central to the war on such crimes.
- explain with the aid of recent examples.

Conclusion:

Conclude with what needs to be done, suggest way forward.

Introduction:

- The “Current State of Cybercrime – 2019” white paper, released by RSA Security says that cyber criminals are increasingly relying on social media platforms to sell stolen identities, credit card numbers and other ill-gotten gains. Fraud from mobile apps rose 680% between 2015 and 2018, says the study.

Body:

- Cyberfraud refers to any type of deliberate deception for unfair or unlawful gain that occurs online. The most common form is online credit card theft. Other common forms of monetary cyberfraud include non-delivery of paid products purchased through online auctions and non-delivery of merchandise or software bought online. Cyberfraud also refers to hacking, phishing, cyber-stalking, data break-ins, identity theft and cyber-bullying, all of which are seriously damaging.

Reasons for increasing cyber-frauds:

- Hardware Cyber Security Concerns: Most equipment and technology for setting up Cyber Security infrastructure in India are currently procured from global sources. These systems are vulnerable to cyber threats just like any other connected system.
- Skill gaps: Globally, India ranks second in terms of the number of Internet users after China (Internet World Stats, 2017). However, India has a negligible base of cyber security specialists, when compared to internet user base.
- Internet of Things as a weak link: Often internet connected devices lack basic security features, or they aren't properly configured and rely upon default passwords that can give attackers easy access. This in turn is giving rise to botnets, which can be used for volumetric attacks.
- Digital Data Threat: Growing online transactions have generated bigger incentives for cybercriminals. Besides, establishments looking to mine data (customer information, results of product surveys, and generic market information), they also create treasured intellectual property that is in itself an attractive target.
- Lack of robust Legal and law enforcement mechanisms: India's approach to cyber security has so far been ad hoc and unsystematic. Despite a number of agencies, policies and initiatives, their implementation have been far from satisfactory.
- Lack of Coordination between stakeholders: Due to the existence of too many agencies with overlapping functions in the field of cyber security, coordination between these agencies is poor
- Lack of awareness: There is a lack of awareness about cyber security threats and preventive measures at both organizational level as well as individual level.

CYBERATTACKS IN INDIA OF LATE

July 2016

UNION BANK OF INDIA HEIST

Through a phishing email sent to an employee, hackers accessed the credentials to execute a fund transfer, swindling Union Bank of India of \$171 million. Prompt action helped the bank recover almost the entire money

May 2017

WANNACRY RANSOMWARE

The global ransomware attack took its toll in India with several thousand computers getting locked down by ransom-seeking hackers. The attack also impacted systems belonging to the Andhra Pradesh police and state utilities of West Bengal

May 2017

DATA THEFT AT ZOMATO

The food tech company discovered that data, including names, email IDs and hashed passwords, of 17 million users was stolen by an 'ethical' hacker—who demanded the company must acknowledge its security vulnerabilities—and put up for sale on the Dark Web

June 2017

PETYA RANSOMWARE

The ransomware attack made its impact felt across the world, including India, where container handling functions at a terminal operated by the Danish firm AP Moller-Maersk at Mumbai's Jawaharlal Nehru Port Trust got affected



Importance of cyber security in India:

- Cyber security is an important arena of internet when the country is moving forward towards a cashless society and digitization.
- Till 2013, India did not even have a cyber security policy in place. It is of paramount concern to take cyber security seriously in India with most of the transactions going online and cashless.
- Security becomes a challenge as now privacy is a fundamental right as per SC verdict and the rise in cybercrimes can lead to violation of private space and liberty of expression.
- Cyber security becomes a vital law of cyber law today. There is need of new tools; capacity building must be done in various departments and a mechanism in place to address these challenges.
- The Indian government has embarked on a programme to turn the country into a digital economy. It has unveiled a series of initiatives—from introducing Aadhaar, MyGov, Government e-Market, DigiLocker, Bharat Net, Startup India, Skill India and Smart Cities to propel India towards technological competence and transformation.

Way forward:

- **Technology:**
 - It is important to define minimum security features for the hardware and software to be deployed in the government ecosystem
 - There is an urgent need to build capabilities and capacity for application, equipment and infrastructure testing through the deployment life cycle to detect any vulnerability and backdoors in the product/technology.
 - Security Operations Centre should be developed for the government organizations with capabilities to detect, respond and recover from any breaches and attacks
- **Human resource:** Immediate attention has to be given to human resource development which would increase the number of experts who can effectively manage the cyber security of the country
- **R&D:** Investments should be made on R&D to develop more innovative technologies to address increasing cyber security threats
- **Policy and Governance:** It is important to bring a robust policy and effectively implement the same. Further, duties and responsibilities should be defined clearly for smooth functioning and better coordination among departments and stakeholders
- **Strengthening Private Partnership:** It is important to strengthen the public- private partnership on cyber security.

Conclusion:

- Most of the Indian banking industry and financial institutions have embraced IT to its full optimization. Reports suggest that cyber-attacks are understandably directed toward economic and financial institutions. With innovative, technology led programmes such as AADHAAR, MyGov, GeM, Digital Locker the new India is the land of technological prowess and transformation. Government and the private sector jointly have to give cyber security some priority in their security and risk management plan.
- Cyber awareness must be spread and there should be multi-stakeholder approach- technological inputs, legal inputs, strengthening law enforcements, systems and then dealing with transborder crime involves lot of international cooperation.

Q) What is cyber-crime ? What types of cyber security threats are being witnessed by the world today ? Explain India's attempts to tackle these issues. (250 words)

Reference

Why this question:

The paper covers in detail the concept of Cyber security, its types and the steps India is taking in this direction.

Key demand of the question:

Answer must discuss the concept of cyber-crime, issues posed by it and the efforts by India to tackle such issues.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.



Structure of the answer:

Introduction:

In a few introductory lines highlight what you understand by cyber-crime.

Body:

In brief discuss the following aspects:

- What do you mean cyber-crime?
- three major categories of cyber-crimes? – Crimes Against People, Crimes Against government, crime against property.
- How is cybercrime committed?
- What are cyber laws in India?
- Discuss significance of policies and laws in this direction like the IT Act etc.

Conclusion:

Conclude with way forward.

Introduction:

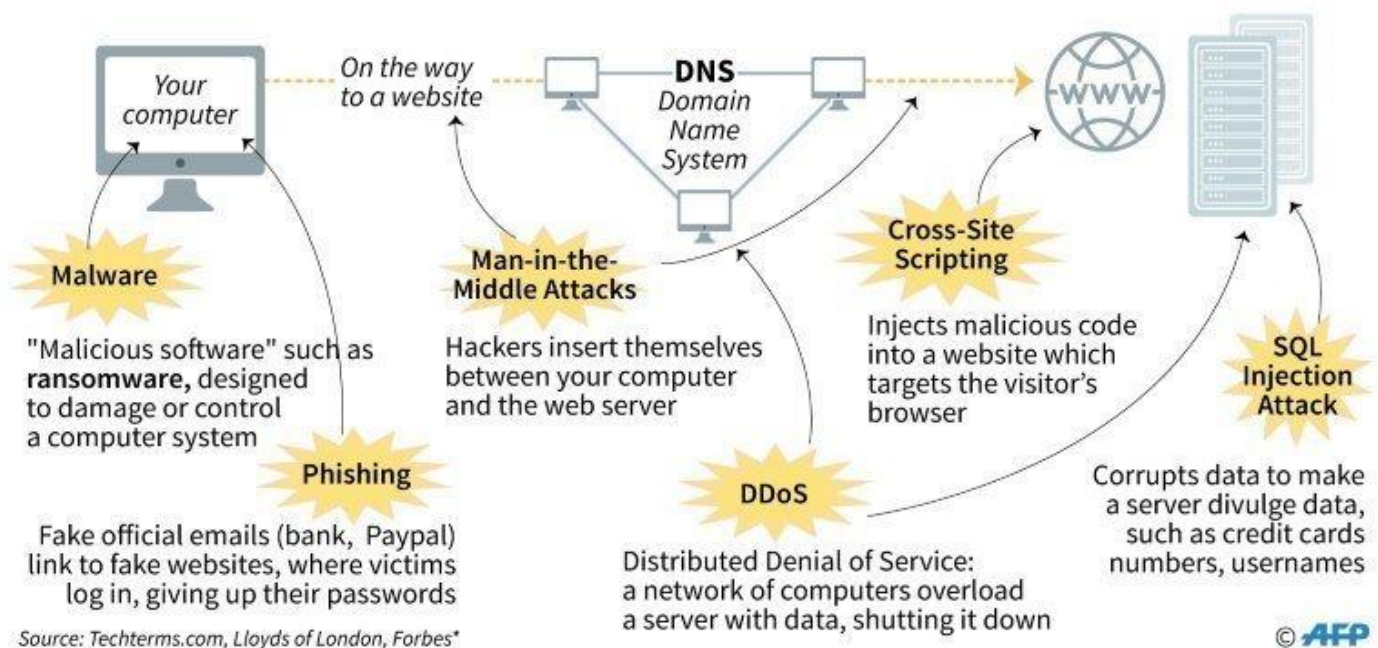
- Cybercrime is a criminal action that encompasses mobile phones, laptop, network, and computer. It is a threat to country's external and internal security and monetary status.
- Crimes committed against publics with an illicit intention to cause physical or psychological harm, or loss to the victim directly or indirectly, by means of contemporary telecommunication networks such as social media network, the Internet and mobile phones.

Body:

- **Types of cyber security threats:** **Cyber Security** is protecting cyber space including critical information infrastructure from attack, damage, misuse and economic espionage.

The different types of cyber attacks

Cyber crime worldwide cost \$400 billion in 2015 and is forecast to reach \$2 trillion in 2019*



India's attempts to tackle these issues:

Information Technology Act, 2000

- The act regulates use of computers, computer systems, computer networks and also data and information in electronic format.
- The act lists down among other things, following as offences:
- Tampering with computer source documents.
- Hacking with computer system
- Act of cyber terrorism i.e. accessing a protected system with the intention of threatening the unity, integrity, sovereignty or security of country.
- Cheating using computer resource etc.



Strategies under National Cyber Policy, 2013

- Creating a secure cyber ecosystem.
- Creating mechanisms for security threats and responses to the same through national systems and processes.
- National Computer Emergency Response Team (CERT-in) functions as the nodal agency for coordination of all cyber security efforts, emergency responses, and crisis management.
- Securing e-governance by implementing global best practices, and wider use of Public Key Infrastructure.
- Protection and resilience of critical information infrastructure with the National Critical Information Infrastructure Protection Centre (NCIIPC) operating as the nodal agency.
- NCIIPC has been created under Information Technology Act, 2000 to secure India's critical information infrastructure. It is based in New Delhi.
- Promoting cutting edge research and development of cyber security technology.
- Human Resource Development through education and training programs to build capacity.

Cyber Surakshit Bharat Initiative: It was launched in 2018 with an aim to spread awareness about cybercrime and building capacity for safety measures for Chief Information Security Officers (CISOs) and frontline IT staff across all government departments.

National Cyber security Coordination Centre (NCCC): In 2017, the NCCC was developed. Its mandate is to scan internet traffic and communication metadata (which are little snippets of information hidden inside each communication) coming into the country to detect real-time cyber threats.

Cyber Swachhta Kendra: In 2017, this platform was introduced for internet users to clean their computers and devices by wiping out viruses and malware.

Training of 1.14 Lakh persons through 52 institutions under the Information Security Education and Awareness Project (ISEA) – a project to raise awareness and to provide research, education and training in the field of Information Security.

International cooperation: Looking forward to becoming a secure cyber ecosystem, India has joined hands with several developed countries like the United States, Singapore, Japan, etc. These agreements will help India to challenge even more sophisticated cyber threats.

Way forward:

- Real-time intelligence is required for preventing and containing cyber attacks.
- Periodical 'Backup of Data' is a solution to ransomware.
- Using Artificial Intelligence (AI) for predicting and accurately identifying attacks.
- Using the knowledge gained from actual attacks that have already taken place in building effective and pragmatic defence.
- Increased awareness about cyber threats for which digital literacy is required first.
- India needs to secure its computing environment and IoT with current tools, patches, updates and best known methods in a timely manner.
- The need of the hour for Indian government is to develop core skills in cyber security, data integrity and data security fields while also setting stringent cyber security standards to protect banks and financial institutions.

Topic: Role of external state and non-state actors in creating challenges to internal security. Linkages of organized crime with terrorism.

Q) Do you agree that Asia, not West Asia is turning into a host to multiple “terrorist safe havens,” owing to the rise of mass radical movements and years of complacency on the part of policymakers. Elucidate with recent examples. (250 words)

Livemint

Why this question:

The article provides for a detailed analysis of how the recent gruesome Sri Lankan bombings are a reminder that Asia—not West Asia—is the region most afflicted by terrorist violence. Home to the vast majority of the world's Muslims, it is also host to multiple “terrorist safe havens,” owing to the rise of grassroots radical movements and years of complacency on the part of policymakers.



Key demand of the question:

Analyse in detail the causes of rise in terrorist safe havens in Asia apart from regular incidences of West Asia. One has to bring out recent examples and justify along with suggesting measures of what needs to be done.

Directive word:

Elucidate – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Provide for the context of recent bombings in Sri-Lanka.

Body:

Discuss the following aspects in the answer body –

- What are the causes for this shift of terrorist havens from west Asia to other parts of Asia? – rise of grassroots radical movements, lack of effective policies, failures etc.
- Quote examples – massacre by a white supremacist at two mosques in Christchurch, New Zealand, 2008 Mumbai attacks, the recent Pulwama attack etc.
- Discuss what needs to be done to resolve the situation and bring it back in control?
- Discuss the policies and initiatives needed by the governments in this direction, need for collaborative efforts etc.

Conclusion:

Conclude with what needs to be done, suggest way forward.

Introduction:

- The murder of more than 250 churchgoers, tourists, and other civilians in Sri Lanka on Easter Sunday should serve as a reminder that Asia is now the world's leading site of Islamist extremism.
- Radical Islamic groups, some affiliated with larger extremist networks, have been quietly gaining influence in an arc of countries extending from the Maldivian to the Philippine archipelagos, and the threat they pose can no longer be ignored.

Body:

The causes for this shift of terrorist havens from west Asia to other parts of Asia:

- **Poor Socio-Economic conditions:**
 - High incidences of poverty, rising inequality, lack of opportunities for the educated youth has made the people soft targets to radicalization and extremist ideologies.
 - The rising radicalism among the people has also added to the vulnerability.
- **Communalism:**
 - The Imperialist sown seeds of Communalism are still strong and the differences between the majoritarians and minorities are manifested in violence. Terror easily finds a space in such turmoils.
 - Official discrimination against Muslims has contributed to Islamists' growing influence, particularly in Myanmar's Rakhine state, Thailand's four southernmost provinces, and the southern Philippine island of Mindanao.
- **Complacency on the part of policymakers:**
 - Asia and in particular South Asia is one of the least integrated regions of the world exposing the rifts which the terrorists can easily cash in on.
 - The rugged terrains, disconnect between the countries due to political differences have led to poor check on security arrangements.
- **State Sponsored Terrorism:**
 - Increased sponsoring of the terror outfits by Pakistan, China and Bangladesh to promote their political agenda has become a serious challenge.
- **Links with the West Asia:**
 - Wahhabism, the austere, rigid version of Islam bankrolled by Saudi Arabia and other Gulf sheikhdoms, remains the driving force behind Islamist terrorism today.
 - Its offspring include not just Al Qaeda and IS, but also the Taliban in Afghanistan, Lashkar-e-Taiba in Pakistan, Boko Haram in Nigeria, and al-Shabaab in Somalia. All of these groups are driven by a nihilistic rage born of hostility toward non-Sunnis and a rejection of modernity.



- The battle-hardened fighters of ISIS from Iraq and Syria with the operational training to stage savage attacks are now returning home. Returnees are present in many other Asian countries as well, from the Philippines and Indonesia to the Maldives and Uzbekistan.

Measures needed:

- Socio-economic factors leading to poverty and alienation must be targeted with national and local level policies.
- Defunct organizations like SAARC should be revived to build the inter-regional co-operation, which would help in regional growth.
- The regional groupings should improve their strategy to fight against terrorism like the RATS of SCO.
- Intelligence sharing with exchange of critical information about terror and extremists should be made part of bilateral agreements and be shared actively.
- Religious leaders and returnees from terror camps should be used to preach and sensitize youth with radical thoughts.
- Monitoring of Social media, curbing of fake news and rumours should also be a part of the strategy to fight terror.

Conclusion:

- As the late Singaporean leader Lee Kuan Yew said, preventing terrorist attacks requires that we eliminate the “queen bees” (the preachers of hatred and violence) who are inspiring the “worker bees” (suicide bombers) to become martyrs.
- The global war on terror, launched by the United States after the attacks of 11 September 2001 is losing steam. Unless it is invigorated and prosecuted to the end, many more innocent lives will be lost.

Q) The recent attacks in Sri Lanka underline the many shortcomings in the concept of a global War on Terror. Elucidate. (250 words)

The hindu

Why this question:

The article highlights how the recent brutal attacks on Easter Sunday in Sri Lanka, for which the Islamic State (IS) claimed responsibility, have reignited discussion on the global ‘War on Terror’.

Key demand of the question:

The answer must evaluate the global efforts for war on terror. The question aims to bring out the shortcoming of such an effort that is leading to continued incidences of such terror attacks across the globe.

Directive word:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In a few introductory lines narrate the background – highlight the recent incidence of terror attack in Sri Lanka.

Body:

The answer must elucidate upon what is Global War on Terrorism?

What are its shortcomings? Why is it failing to address the issue of terrorism? – discuss the issue of religious terrorism, use the case study of recent terror attack that Sri Lanka witnessed. Discuss how global efforts have failed to address the issue. Suggest what needs to be done to overcome the issue and address the menace of global terrorism.

Conclusion:

Conclude with what should be the way forward.

Introduction:

- The brutal attacks on Easter Sunday in Sri Lanka, for which the Islamic State (IS) claimed responsibility, have reignited discussion on the global ‘War on Terror’. The increase in attacks and deaths across more countries has meant that the impact of terrorism is becoming more widespread, even as deaths from terrorism are decreasing. As the intensity of terrorism has increased over the last two decades, its impact has also spread to more countries around the world.

**Body:****Global War on Terrorism:**

- The War on Terror first began on a global scale after the 9/11 terrorist attack in 2001.
- The first global mission for War on Terror was Operation. Enduring Freedom by 60 countries led by US to replace Taliban government in Afghanistan and defeat Al-Qaida.
- However, it appears that this first global mission has produced limited positive results. US now intends to withdraw from Afghan & is in talks with Taliban to ensure its representation in Afghan government even though Taliban still continues terrorist attacks in Afghan.
- Therefore, the objective of Operation. Enduring Freedom to replace Taliban & to end Talibani terrorism has failed.
- The second War on Terror was when 46 nations led by US formed the 'Coalition of the Willing' in 2003 to defeat Saddam Hussein in Iraq.
- However, it led to the destabilization of Iraq & formation of global terrorist State- ISIS, which is now undertaking terrorist attacks on global scale such as in Sri Lanka. Therefore, the second War on Terror ended by increasing global terrorism.
- The Next War on Terror was conducted in Libya & Syria after the Arab Spring in 2011.
- Libya did not have strong linkages with spread of terrorism but a Coalition of Western countries led by France undertook regime change in Libya & it became destabilized, which now has become a safe haven for Al-Qaeda. Similarly, destabilized Syria became a safe haven for ISIS & other terrorist groups.
- Therefore, the next War on Terror in Libya & Syria led to formation of terrorist groups & safe havens which did not exist earlier.

Shortcomings of the effort:

- There was no change in the five countries most impacted by terrorism, which include Iraq, Afghanistan, Nigeria, Syria and Pakistan. All of these countries have been ranked in the worst five every year since 2013.
- Conflict continued to be the primary driver of terrorist activity for the countries most impacted by terrorism in 2017.
- In 2017, terrorist attacks in conflict countries averaged 2.4 deaths, compared to 0.84 deaths in non-conflict countries. Terrorist attacks are more lethal on average in countries with a greater intensity of conflict. In 2017, countries in a state of war averaged 2.97 deaths per attack, compared to 1.36 in countries involved in a minor armed conflict.
- There are numerous possible reasons for this difference. Countries in conflict have a greater availability of more military-grade small arms and bomb-making capabilities.
- Countries that are not in conflict tend to be more economically-developed and spend more on intelligence gathering, policing and counterterrorism.
- The War on Terror built by world leaders is a "fight for Islam" is equally false. According to the Global Terrorism Database, of the 81 terror attacks in which more than 100 were killed (high casualty) since 2001, more than 70 were carried out in Islamic or Muslim-majority countries.

Conclusion:

- The world community must address contradictions in the War on Terror. For 20 years, the world has failed to agree on a common definition of terrorism at the United Nations. Unless the world is truly united on the issue and resolves such contradictions, the global War on Terror will only be as strong as its weakest link.
- The success or failure of each of these approaches must be studied before deciding their applicability elsewhere. A **comprehensive and multidimensional strategy** for the "War on Terror" must involve an integrated view of these strategic military and economic domains, among others.

Topic: Role of media and social networking sites

Q) Discuss the effects of social media on Democracy. How does it play a key role to be an enabler of transparency and democracy? (250 words)

Reference**Why this question:**

The article discusses in detail how social media influence democracy.

Key demand of the question:

The answer must debate that there are several positives that social media brings to the table, including affordable access to information, voicing voter concerns, and adding another communication channel



between voters and politicians. But social media has just as many pitfalls — some that are already being addressed, others that both social media companies and governments continue to examine. Thus, for users of social platforms, it is becoming increasingly important to be aware of these pitfalls.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In a few introductory lines explain the role of social media in general.

Body:

- Highlight why social media is important to a democracy?
- How does media strengthen democracy?
- What is the relationship between media and democracy in general? Discuss the specific case of social media.
- What are the issues associated?
- Explain how can one handle these issues, explain what needs to be done.

Conclusion:

Conclude with what should be the way forward.

Introduction:

- Democracy provides opportunities to enhance the role of people in collective decision-making so that it is inclusive, equitable, transparent, accountable and justiciable. In this respect, social media has had a significant contribution towards making democracy even stronger than before.
- It started with the electronic media becoming its fourth pillar in 2000s and culminated with the growing role of internet in the form of social media. After legislature, executive, Judiciary, Media and Common Man, the sixth pillar of the democracy is touted to be 'Social Media'. All these pillars have the capacity to change the status-quo and undone wrongdoing.

Body:

- The social media is a recent additive. It works on a virtual space almost without any constraint. The main platforms are Facebook, whatsapp and Twitter. The capacity of online activism through these platform is immense.
- Social media has drastically changed the landscape in democratic polity in following ways:

Public's outreach to Government:

- Greater mass involvement in decision-making, providing input to policies, sharing of ideas and innovative governance methods
- Faster complaint registration and grievance redressal;
- Time and resource management with online execution of most formalities
- In Iceland, for example, when someone moves to a new neighbourhood, the first thing they often do is join their community's Facebook group. They tag their representatives in posts and push for the issues they want taken to Parliament. Conversations like these are quietly reinvigorating local governance around the world.

Government's outreach to the public:

- Timely delivery of services: For eg, twitter has been a tool for the passenger of railways to redress their specific grievances.
- Spreading awareness on its policies and schemes using facebook and twitter. Most political leaders, in government or opposition employ social media to interact with people.
- Gauging public mood and response on its recent initiatives so as to modify it accordingly. It thus provides a platform to address the elitism that has crept in politics due to dislink with the public.

Public's outreach to public:

- Act as vanguard of democracy: It is a tool of mobilisation so that protests against unfair policy decisions of govt or against any undemocratic and unconstitutional move can be held. Anna Hazare agitation was one such instance.
- It allows to maintain a critical environment that questions on the doings and undoings. Hence it enriches public discourse.



Social media media's impact on democracy is that it amplifies human intent — both good and bad. At its best, it allows us to express ourselves and take action. At its worst, it allows people to spread misinformation and corrode democracy.

Pros:

- The hashtag activism empowers people to speak up injustice without fear. Some recent examples are #not in my name, #MeToo.
- Social media provide solidarity and sense of companionship to those unable to reach government or raise their voice.
- It has long been observed that when people discuss the news, they're more likely to be involved in their community, whether by volunteering or reaching out to elected officials. There is growing evidence that this is also true for social media — especially among young people.
- Social media platforms are driving people not just to learn about issues but to take action. For e.g.: During the 2016 US election alone, the voter registration efforts on Facebook led more than 2 million people to register to vote.

Cons:

- Online abuse, hate speech and harassment is perpetuating with anonymity. Policing the content at a global scale is an open research problem since it is hard for machines to understand the cultural nuances of political intimidation.
- The unbridled exercise of power on online platform is out of government regulation.
- It has become a medium to influence youth by the terror outfits
- The spreading of fake news which hampers peace and tranquillity of a nation is rapid and complete.
- One of the most common criticisms of social media is that it creates echo chambers where people only see viewpoints they agree with — further driving us apart.
- While foreign meddling, misinformation, echo chambers and hate speech get the headlines, it is also worrisome that how social media can distort policymakers' perception of public opinion.
- The 2016 US presidential election brought to the fore the risks of foreign meddling, "fake news" and political polarization. The effect of social media on politics has never been so crucial to examine.
- If politicians mistake the views of a few with the views of many, that can make for bad public policy. Vulnerable populations could end up ignored, and fringe groups could appear mainstream.

Conclusion:

- In short, social media is a potent tool, and may be a revolutionary one, to further strengthen the ethos and principles of democracy in novel ways. The use of social media for political activities influences peoples' political efficacy, political knowledge, and political participation.
- Social media must be submitted to the same rules that are established for other media such as clear accountability and transparency. This would probably require new international laws. Moreover, the big companies should continue looking for ways to prevent the abuse of their media.



INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION

SECURE SYNOPSIS MAINS **2019**

GS-III

JUNE **2019**



General Studies Paper - III

Topic: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

Q) India's unemployment challenge party lies in its success in expanding education while not expanding formal sector jobs. Comment. (250 words)

The hindu

Why this question:

The Article discusses at length the problem of unemployment and in what way one needs to see rising unemployment as a function of rising education and aspirations.

Key demand of the question:

The answer must explain the causes of rising unemployment challenge in India, what are the factors responsible and how it can be resolved.

Directive word:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

Begin with brief write up on the current unemployment scenario of the country.

Body:

The answer must discuss the following:

- Quote the facts from the report from the Periodic Labour Force Survey (PLFS).
- Discuss the conditions which suggest that part of India's unemployment challenge lies in its success in expanding education while not expanding formal sector jobs.
- Explain in detail the observations taken together which suggest that the roots of India's present-day unemployment challenges lie in its very success. Educational expansion affects the unemployment debate by skewing the unemployment statistics and by creating greater competition for well-paid jobs among a rising population of educated youth. Rising prosperity allows young graduates to wait for well-paying jobs, creating an army of educated unemployed, before being forced to accept any work, frequently returning to family farms or starting small shops.
- Conclude with way forward.

Conclusion:

Conclude with solutions to overcome the challenge.

Introduction:

- The much talked about report from the Periodic Labour Force Survey (PLFS) is out.
- This was the first time that the NSSO conducted the Periodic Labour Force Survey, which is an annual survey mapping unemployment to provide a closer trace of unemployment.
- The earlier five-yearly surveys used to come with a lag of over one or two years, thus reducing the possibility of timely analysis.

Body:

Key findings in the report:

- The unemployment rate (UR) in both rural and urban India is at its highest since 1972.
- The unemployment rates among men and women in both rural and urban groups, are also the highest ever. The increase in the UR is more than three times among rural men and more than double among rural women according to the usual status since 2011-12
- The staggering increase in the unemployment rate, from 1.7% in 2011-12 to 5.8% in 2017-18 for rural men and from 3.0% to 7.1% for urban men, has generated wide ranging concerns.
- In urban areas, the unemployment rates for females are higher than those for males.
- For 15-19-year-old rural men, the proportion primarily engaged in studying increased from 64% to 72% between 2011-12 and 2017-18. As a result, while the proportion of the population aged 15-19 that is unemployed doubled from 3% to 6.9%, the unemployment rate tripled from 9% to 27%.



- Among social groups, the highest UR is among the 'General' or 'Others' category — 6.7 per cent. This group is followed by Schedule Castes (6.3 per cent), Other Backward Classes (6 per cent) and Scheduled Tribes (4.3 per cent).
- Among religious groups, Christians have the highest UR in both urban and rural areas. In rural areas, Christians have a UR of 7.4 per cent, Muslims have a UR of 6.5 per cent, Sikhs 6.3 per cent and Hindus 5.2 per cent.
- In urban areas, Christians have a UR of 11 per cent, Sikhs 9.1 per cent, followed by Muslims 8.5 per cent and Hindus 7.6 per cent.

Apart from the above, the report presents a more nuanced picture if we are to look beyond the partisan debates to policy implications of the data on employment and unemployment. Three takeaway points from these data are of particular policy relevance.

- While the unemployment rate is a frequently used measure of poor performance of the economy, under conditions of rising school and college enrolment, it paints an inaccurate picture.
- The reported unemployment rate is dominated by the experience of younger Indians who face higher employment challenges and exhibit greater willingness to wait for the right job than their older peers.
- The unemployment challenge is greatest for people with secondary or higher education, and rising education levels inflate unemployment challenges.
- It is important to recognise that in a country dominated by informal sector work, remaining unemployed is possible only for individuals whose families can survive without their immediate contributions.
- The unemployment rate has been traditionally high for men with secondary or higher level of education and this is the segment in which most of the increase in unemployment is located.

Reality of jobless growth:

- Part of India's unemployment challenge lies in its success in expanding education while not expanding formal sector jobs.
- These observations taken together suggest that the roots of India's present day unemployment challenges lie in its very success.
- Educational expansion affects the unemployment debate by skewing the unemployment statistics and by creating greater competition for well-paid jobs among a rising population of educated youth.
- Rising prosperity allows young graduates to wait for well-paying jobs, creating an army of educated unemployed, before being forced to accept any work, frequently returning to family farms or starting small shops.

Way forward:

- Recognition of rising unemployment as a function of rising education forces us to grapple with different issues than a simple focus on unemployment statistics.
- If public policies such as demonetisation are responsible for rising unemployment, we would see across-the-board increase in unemployment for all age groups.
- This phenomenon is located mainly among the young and well educated reflects a challenge that goes well beyond the temporary slowdown facing India post-demonetisation.
- Creating jobs for an increasingly educated workforce and ensuring that the new workers are well equipped to enter the labour force are twin challenges that deserve greatest priority.
- Besides promoting technical education, the government needs to focus more on creation of jobs and demand for workers since industries are unable to create sufficient job opportunities for all the technically educated people
- Policies should ensure that the education systems prepare young people for the skill demands of employers through outreach programmes, training, apprenticeships, and access to job-search assistance measures
- There should be **cluster development to support job creation in micro, small and medium enterprises (MSMEs)**. Most of the **unorganised sector employment** is in MSMEs, which tend to be concentrated in specific geographic locations.
- Private sector leaders should build capacity among unskilled and semi-skilled workers to ensure sustainability of renewable energy projects and provide opportunities to rural communities.
- Government officials should create public training programmes to prepare the poor and less educated people especially semi-skilled and unskilled for employment in the clean-energy sector.

**Conclusion:**

- India has one of the youngest populations in an aging world. By 2020, the median age in India will be just 28. Demographics can change the pace and pattern of economic growth. While China's spectacular growth has already benefited from a demographic dividend, India is yet to do so.

Q) Discuss the key highlights of 'prudential framework for resolution of stressed assets' that were recently released by RBI, also discuss significance of such steps. (250 words)

Reference**Why this question:**

The question is in the context of recently released RBI's new prudential framework for resolution of stressed assets by banks.

Key demand of the question:

The answer must discuss the key features of the new prudential framework for resolution of stressed assets by banks, also one should provide for previous efforts made in this direction.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:**Introduction:**

In a few introductory lines discuss the issues plaguing the Banks of India in terms of the stressed assets.

Body:

In brief discuss –

- The new framework for resolution of bad loans, offers a 30-day gap for stress recognition instead of the one-day default earlier.
- Lenders will have complete discretion with regard to the design and implementation of resolution plans, subject to the specified timeline and independent credit evaluation.
- enders may recognize incipient stress in loan accounts, immediately on default, by classifying such assets as special mention accounts (SMA).
- For the purpose of restructuring, the definition of 'financial difficulty' to be aligned with the guidelines issued by the Basel Committee on Banking Supervision; and,
- If multiple lenders are involved, all the lenders must enter into an inter-creditor agreement (ICA) during the review period, to provide for ground rules for the resolution plan.
- Suggest what should be the way forward.

Conclusion:

Conclude with what more needs to be done.

Introduction:

- Reserve Bank of India has come out with an updated guideline about resolving stressed assets on 7th June 2019. The new guideline on resolution of stressed asset is called Prudential Framework for Resolution of Stressed Assets Directions 2019.
- The directions have been issued in terms of the provisions of Section 35AA of the Banking Regulation Act, 1949, for initiation of insolvency proceedings against specific borrowers under the Insolvency and Bankruptcy Code, 2016 (IBC).

Body:

- It is a set of guidelines to banks for tackling their stressed assets. Significance of the Prudential Framework is that it replaces the previous controversial/stringent and Supreme Court squashed stressed asset resolution guidelines published in February 2018.

Key highlights of the PFRSAD are:

- The central bank has made it voluntary for lenders to take defaulters to the bankruptcy court i.e. to use the **Insolvency and Bankruptcy Code**.
- The norms give lenders 30 days to start working on a resolution plan from the day of default.
- A lender will now have to set aside:
 - 20% more provisions if the plan is not implemented within 210 days from the date of default
 - 35% if the plan is not implemented within 365 days of default



- Besides, the new norms said that wherever necessary, the RBI will direct banks to start insolvency proceedings for specific defaults.
- The lenders may also choose to initiate legal proceedings for either insolvency or recovery.
- Meanwhile, the norms put in place penal provisions, for lenders, for resolution plans that are not implemented.
- The RBI circular also mandated signing of the inter-creditor agreement by all lenders.
- The RBI said that lenders must put in place board-approved policies for resolution of stressed assets.
- This must include the timelines for resolution.
- RBI said that it ideally expects lenders to initiate the process of implementing a resolution plan (RP) even before a default.
- During 30 days review period, lenders may decide on the resolution strategy.
- These include the nature of the RP and the approach for implementation of the RP.
- Here, the review period for defaulters of Rs.2,000 crore and above will start immediately.
- And that for defaulters between Rs. 1,500 crore and less than Rs. 2,000 crore will start only from 1 January 2020.
- The framework now applies to a larger universe of lenders including small banks and non-banking finance companies (NBFCs).
- This essentially means that the lenders will also have to follow the early stress recognition guidelines of RBI.
- These specify that borrowers must be categorized into special mention accounts based on their delay in repayment, which are:
 - Special mention account-0 (SMA-0) loans, where the repayment overdue is between 1-30 days
 - SMA-1 where the repayment overdue is between 31-60 days
 - SMA-2 where the repayment overdue is between 61-90 days

Conclusion:

- The slower-than-expected progress under the Insolvency and Bankruptcy Code (IBC) remains the key hurdle to the timely resolution of stressed assets.
- The Reserve Bank of India's (RBI) revised framework for the resolution of stressed assets is credit positive, because it brings back the focus on the need for the timely resolution of such assets, and the build-up of loan loss provisioning against those assets.

Q) In the backdrop of recently released revised prudential framework for resolution of stressed assets, "RBI's debt resolution rules are a mixed bag", Critically analyse. (250 words)

[Livemint](#)

Why this question:

The article provides for a detailed analysis of RBI's debt resolution strategies their pros and cons.

Key demands of the question:

Answer is to analyse how the steps taken by RBI had both merits and demerits and what needs to be done to manage the current prevailing conditions of stressed assets.

Directive word

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction

In a few introductory lines explain the role played by RBI.

Body

Discuss the role of RBI in providing for a prudential framework for resolution of stressed assets.

Discuss what are the approaches carried out by RBI in the recent past.

Explain how changes are both good and not so good – timely resolution of sticky assets through mounting punitive provisions etc. take hints from the article and list down the pros and cons.

Suggest your opinion and conclude with fair and balanced conclusion.

Conclusion

Reassert the importance of key role played by the RBI.

**Introduction:**

- Reserve Bank of India has come out with an updated guideline about resolving stressed assets on 7th June 2019.
- The new guideline on resolution of stressed asset is called Prudential Framework for Resolution of Stressed Assets Directions 2019.
- The directions have been issued in terms of the provisions of Section 35AA of the Banking Regulation Act, 1949, for initiation of insolvency proceedings against specific borrowers under the Insolvency and Bankruptcy Code, 2016 (IBC).

Body:

The norms issued will replace all the earlier resolution plans such as

- Framework for revitalising distressed assets,
- Corporate debt restructuring scheme,
- Flexible structuring of existing long-term project loans,
- Strategic debt restructuring scheme (SDR),
- Scheme for sustainable structuring of stressed assets (S4A), and
- Joint lenders' forum with immediate effect.

Key highlights of new framework:

- The new framework for resolution of bad loans, offers a 30-day gap for stress recognition instead of the one-day default earlier.
- Lenders will have complete discretion with regard to the design and implementation of resolution plans, subject to the specified timeline and independent credit evaluation.
- Lenders may recognise incipient stress in loan accounts, immediately on default, by classifying such assets as special mention accounts (SMA).
- For the purpose of restructuring, the definition of 'financial difficulty' to be aligned with the guidelines issued by the Basel Committee on Banking Supervision; and,
- If multiple lenders are involved, all the lenders must enter into an inter-creditor agreement (ICA) during the review period, to provide for ground rules for the resolution plan.

Pros:

- RBI now allows banks up to 30 days after the default to consider the future path of action, and affords them more latitude in taking defaulters to insolvency courts
- The key change here is **RBI's carrot-and-stick approach**. Lenders effectively get 30 days to negotiate with defaulters before putting in motion a 180-day resolution plan with other lenders.
- the process of kicking off a resolution plan has also been eased with assent required from only 75% of lenders by debt value, and 60% by number, unlike earlier where all lenders had to agree to the resolution plan
- the new circular now includes other lending agents like term-lending financial institutions (such as Exim Bank or Small Industries Development Bank of India), non-banking financial companies (NBFCs) and small finance banks, which somewhat evens out the misaligned regulatory plane.
- The focus remains on timely resolution of sticky assets through mounting punitive provisions.

Cons:

- By not resolving a default in effectively 210 days and by not dragging defaulters to insolvency courts, banks will have to make higher and penal provisions.
- With close to 70% of assets in the state-owned banking system, where tenured bankers have little or nil incentive to pursue resolution, the likelihood of higher provisioning acting as a disincentive is suspect.
- Two other important credit providers remain outside the regulatory ambit: mutual funds and private equity companies, which have become large credit dispensers and, in some cases, active participants in the evergreening of non-performing assets, without necessarily investing in the requisite credit appraisal skills.
- Mutual funds, in particular, have been caught on the wrong foot after lending against the security of pledged shares and with exposures to dodgy NBFCs.

Way forward:

- The onus then must shift to the government which has proclaimed the Insolvency and Bankruptcy Code (IBC) among its key achievements.
- The government has to ensure that large corporates do not game the system, as some of the large corporate defaulters have successfully done so far by arbitraging the asymmetric legal framework.
- Unlike RBI, the government has the legislative remit to construct a concrete track to insolvency courts for defaulters.

**Conclusion:**

- The slower-than-expected progress under the Insolvency and Bankruptcy Code (IBC) remains the key hurdle to the timely resolution of stressed assets.
- The Reserve Bank of India's (RBI) revised framework for the resolution of stressed assets is credit positive, because it brings back the focus on the need for the timely resolution of such assets, and the build-up of loan loss provisioning against those assets.

Q) “India’s workforce is masculinizing rapidly”, Critically analyse the statement in the light of recently released official data on Labour Force Participation Rate (LFPR). (250 words)

[Livemint](#)

Why this question:

Representation of women in India’s workforce is at a historic low, and even those who work long hours for low pay, shows latest employment survey.

Key demand of the question:

The answer must evaluate in detail the recently released official employment survey of India.

Directive word:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer**Introduction:**

In a few introductory lines bring out the highlights of the survey.

Body:

Answers must discuss the following aspects –

- What are the concerns posed by the gender gap scenario in the employment aspect of the country?
- over three out of four women over the age of 15 in India are neither working nor seeking work. This would imply that they are most likely running the house and taking care of children.
- Then move on to explain the factors responsible for such a fall in working rates of women.
- Take cues from the article, suggest data across the sectors, women of all age groups etc.
- Suggest what needs to be done to overcome such concerns and challenges.

Conclusion –

Conclude with way forward.

Introduction:

- The recently released **periodic labour force survey (PLFS)** data published by the **NSSO** shows that **India’s female Labour Force Participation Rate (LFPR)**—the share of working-age women who report either being employed, or being available for work—has fallen to a historic low of 23.3% in 2017-18, meaning that over three out of four women over the age of 15 in India are neither working nor seeking work.

Body:**Highlights of the report:**

- Just nine countries around the world, including Syria and Iraq, now have a fewer proportion of working women than India, new official data confirms.
- If Bihar were a country, it would have the lowest share of working women in the world. Bihar has by far the lowest rates of female workforce participation, while the southern and eastern states do better.
- Among urban women who do work, domestic cleaning work is the second most common profession after textile-related jobs.
- While the LFPR for women aged 15-29 fell by eight percentage points between 2011-12 and 2017-18 to 16.4%, the LFPR for women fell by at least seven percentage points for every age bracket between 30-50 as well.
- Among women in the prime working ages of 30-50, more than two in three women are not in the workforce, with the majority of them reporting that they are “attending to domestic duties only”
- Muslim women have the lowest LFPR while among Hindu women, forward caste women have the lowest LFPR, implying that social norms and religious conservatism might play a role in women being “allowed” to work.



- rural women work overwhelmingly in agriculture, which could offer a clue to understanding the falling rates of rural workforce participation. It is likely that non-farm jobs are rare, especially for women.
- 99% of (women workers described as directors and chief executives) were self-employed, of which around one-third worked as unpaid family workers

Factors responsible for such a fall in working rates of women:

- **Maternity:** Many women who join the workforce are unable to re-join after having a child.
- The landmark legislation Maternity Benefit Act, 2017, which entitles a woman to 26 weeks of paid maternity leave, is becoming a big hurdle as start-ups and SMEs have become reluctant to hire them.
- The increased cost for companies and this may discourage them from hiring women.
- The share of women workers in the agriculture sector dropped from 42% in 2004 -05 to 35.5% in 2011-12. This decrease in FLPR in agriculture can be attributed to **increased adoption of technology in agriculture**.
- The **gender pay gap was 34 per cent in India**, that is, women get 34 per cent less compared to men for performing the same job with same qualifications.
- In the organised sector, women professionals even in the highest ranks of labour (legislators, senior officials, and managers) are also paid less compared to their male counterparts. However, these women constitute only one per cent of the total female work force and the gap is lowest as they are aware of their rights.
- **Concerns about safety and Harassment at work site**, both explicit and implicit.
- According to NSSO, urban males accounted for 16% of India's population, but held 77% of all jobs in computer-related activities in 2011-12. This shows how gender has become a discriminatory factor for certain white-collared jobs.
- **Higher Education levels of women** also allow them to pursue leisure and other non-work activities, all of which reduce female labour force participation.
- **Insufficient availability of the type of jobs** that women say they would like to do, such as regular part-time jobs that provide steady income and allow women to reconcile household duties with work.
- According to the reports, about 74 per cent in rural areas and about 70 per cent in urban areas preferred 'part time' work on a regular basis while 21 per cent in rural areas and 25 per cent in urban areas wanted regular 'full-time' work.
- **Marriage is a career stopper** for the majority of Indian women and this cultural abhorrence towards women working is a not-so-subtle way of ensuring that the escape routes out of a marriage are minimised, if not entirely closed
- Social norms about household work are against women's mobility and participation in paid work. **Childbirth and taking care of elderly parents or in-laws** account for the subsequent points where women drop off the employment pipeline.
- The **cultural baggage about women working outside the home** is so strong that in most traditional Indian families, quitting work is a necessary precondition to the wedding itself.
- When **increases in family incomes** are there, due to the cultural factors, women leave the work to take care of the family and avoid the stigma of working outside.

Way forward:

- **Non-farm job creation for women:** there is a need to generate **education-based jobs in rural areas** in the industrial and services sectors
- The **state governments** should make **policies for the participation of rural women in permanent salaried jobs**.
- The governments should also **generate awareness to espouse a positive attitude towards women** among the public since it is one of the most important impediments in women's participation in economic activities.
- Local bodies, with aid from state governments, should open more crèches in towns and cities so that women with children can step out and work. The crèches will open employment opportunities for women.
- **Supply side reforms** to improve infrastructure and address other constraints to job creation could enable more women to enter the labour force.
- **Higher social spending**, including in education, can lead to higher female labour force participation by boosting female stocks of human capital.
- **Skilling the women:**
 - Initiatives such as **Skill India, Make in India, and new gender-based quotas from corporate boards to the police force** can spur a positive change. But we need to **invest in skill training and job support**.



- The private sector could also take active part in training women entrepreneurs. For example: Unilever's Shakti program, which has trained more than 70,000 rural women in India as micro-entrepreneurs to sell personal-care products as a way of making its brands available in rural India
- **Equal pay:** The principle of equal remuneration for work of equal value that is protected by Indian law must be put to actual practice. Improved wage-transparency and gender neutral job evaluation is required to achieve this end.
- **Assuring safe access to work:** It is important to improve existing transport and communication networks and provide safe accommodation for women who travel to or has migrated for work.
- A useful and easily implementable idea would be to give **income tax benefits to women**. It would be a bold and effective step to increasing India's female workforce participation.
- For political empowerment of women, their **representation in Parliament and in decision making roles in public sphere** is one of the key indicators of empowerment.
- **Gig Economy** provides women flexible work options to pursue their career while not missing important milestones in their family lives.
- Drawing more women into the labour force, supplemented by structural reforms that could help create more jobs would be a source of future growth for India. Only then would India be able to reap the benefits of "demographic dividend" from its large and youthful labour force.

Conclusion:

- With more than 75% women not contributing to the economy, the nation is not only losing on the economic part but also the development of 50% of our population. The numeric consequences of reducing obstacles to women's full economic participation far exceed the demographic advantages of having a larger pool of young workers. It is thus high time to talk of the gender dividend along with the demographic dividend.

Q) What is the meaning of the term 'Jobless growth' ? Has India been experiencing such a growth process ? How far Skill India programme would address the jobless growth phenomenon in India ? (250 words)

[Livemint](#)

[The hindu](#)

Introduction:

- **Jobless growth is a multi-cause, systemic problem.** In a jobless growth economy, unemployment remains stubbornly high even as the economy grows.
- This tends to happen when a relatively large number of people have lost their jobs, and the ensuing recovery is insufficient to absorb the unemployed, under-employed, and those first entering the workforce.
- Jobless growth of the Indian economy is a **"5C" problem: a Complicated Condition Created by Combinations of Causes**.

Body:

Jobs scenario in India

- CMIE and labour Bureau data indicates that India continues to face the jobless growth problem
- Multiple data sources clearly show that job opportunities in India are, at present, limited, with the average annual addition to regular jobs during 2012-16 falling to 1.5 million from 2.5 million in 2004-12.
- Besides, job creation in India's organized manufacturing sector experienced a sharp fall in 2012, later recovering only to a level considerably below any prior year during 2006-12.
- Furthermore, the share of regular workers with any form of social security has declined from 45% in 2011-12 to 38% in 2016.
- the labour force participation rate has declined systematically. It was 43% in 2004-05, 40% in 2009-10, 39.5% in 2011-12 and 36.9% in 2017-18.
- Rapid advances in digital technologies and automation are displacing people from work in all sectors of the economy—in manufacturing, in services, and even in knowledge industries.

Skill India can tackle Jobless growth:

- In the words of the Mahatma, "The brain must be educated through the hand. The teacher must learn the craft and correlate his knowledge to the craft. The craft cannot be separated from education."
- Under Skill India Mission, the Ministry of Skill Development and Entrepreneurship is implementing a flagship scheme PMKVY with an objective to provide skilling to one crore people across the country for four years (2016-2020).



The **impacts of the SKILL INDIA mission** in the last 4 years are:

- NSQF **recognises prior learning**, through which an estimated **20 million school dropouts** can get a second chance.
- There is a **substantial increase** in the number of people who were skilled in FY17 and FY18. Notably, the rise is phenomenal, it has risen more than four times, from over 3.5 lakh people in FY17 to nearly 16 lakh people in FY18.
- About **30% of the skilled persons** have found jobs under the mission in FY2018.
- With nearly **55 percent successful placements**, the **Short-Term Training Program (STT)** under **PMKVY (2016-20)** has **successfully trained over 13 lakh candidates**.
- Approximately **76 percent** of the candidates have been placed in **wage employment** and **24 percent placed in self-employment/ entrepreneurship**.
- **Recognition of Prior Learning (RPL)** is designed for those who already have a job or are self-employed and require up-skilling and certification for better prospects. Till date, more than 4.5 lakh candidates have been certified under this component of **PMKVY (2016-20)**.

However, challenges remain:

- The **targets allocated are very high** and without regard to any sectoral requirement. Everybody was chasing numbers without providing employment to the youth or meeting sectoral industry needs.
- The focus of PMKVY has been **largely on the short-term skill courses**, resulting in low placements. There has been an over emphasis on this scheme and hence it is seen as the answer to all skill-related issues.
- The **Comptroller and Auditor General (CAG)** has pointed out flaws in the design and operations of the NSDC and National Skill Development Fund which has resulted in falling short of skill development goals. Majority of them also could not achieve the placement targets for the trained persons.
- The **Sharada Prasad Committee**, held the NSDC responsible for poor implementation of the **Standard Training Assessment and Reward (STAR) programme**. It highlighted that **only 8.5 per cent of the persons trained were able to get employment**. That is what has been claimed by NSDC.
- The Report also cites “**serious conflict of interests**” in the functioning of the National Skill Development Corporation. NSDC has not been able to discharge its responsibilities for setting up **sector skill councils (SSCs)** owing to lots of instances of serious conflict of interest and unethical practices.
- The skilling courses are not in line with the **Industrial Revolution 4.0** which is round the corner.
- There have been apprehensions on **how many of the 11.7 million trained in the past two years** are really in jobs.

Other supporting measures needed along with SKILL INDIA:

- Improving the labour market information system where emerging demand for skills are spotted quickly and the necessary training and certifications for the same are created.
- Quick improvements in public-private partnership in capturing demand for skills and following through with quick investments in skill-building to match demand with supply.
- Jobs and skills planning should be decentralized and it has to be done at state and district levels, where there is granular information on education, skills and job options.
- Implementing a new model of manufacturing which is high-skilled, and where high-end cottage manufacturing can create employment at the small scale level.
- If urbanization is good and well planned, then job growth will be positive. Government should concentrate on the development of towns and narrow areas and service it with good infrastructure to generate employment alongside development.
- If government starts spending on public goods (schools, hospitals, dams, roads etc.) instead of spending on freebies (deep subsidies on food, farm loan waivers etc.) the capacity of government to create employment increases.

Conclusion:

- India needs a new strategy to counter the phenomena of jobless growth. This requires manufacturing sector to play a dominant role.
- The focus of economic policy must be the creation of jobs and creating an enabling policy for youth to take up entrepreneurship and create more jobs in the market. India does not need five companies worth 5000 crores turnover but needs 5000 companies of 5 crore turnover.



Q) Indian economy, polity and demography has undergone many changes from last 70 years. In this context, is it the right time to revisit the India's Fiscal Federalism ? Critically comment. (250 words)

The hindu

Introduction:

- Fiscal federalism is **the financial relations between units of governments in a federal government system**. It is part of broader public finance discipline. The term was introduced by the German-born American economist **Richard Musgrave** in 1959. Fiscal federalism deals with the division of governmental functions and financial relations among levels of government.
- India has a federal form of government, and hence a federal fiscal system. For successful operation of federal form of government, **financial independence and adequacy** forms the backbone. The Economic Survey 2017-18 highlighted the need for fiscal federalism.

Body:

The needs to revisit the Indian fiscal federalism are:

- **Trends in Tax Revenue:**
 - A look at the composition of central and states' own taxes and expenditure reveal that the share of the own tax revenue and expenditure of the states is 38% and 58% respectively.
 - This reflects the more than proportionate expenditure obligations of the states and also the lesser revenue raising powers vis-à-vis the centre.
 - The centre has buoyant sources of revenue like personal income tax, corporation tax, excise duty, customs duty and service tax. However, the tax-gross domestic product (GDP) ratio of the centre has stagnated by 11% on an average, during the period 1970-71 to 2016-17.
- **Trends in Transfer of Central Resources:**
 - The transfer of resources to states comprises taxes collected by the Union, statutory grants under Article 275 based on the recommendations of the finance commissions, grants given as central share in centrally sponsored schemes (CSS), other discretionary grants, and until 2015-16, formula-based grants for state plans under the Gadgil formula.
 - The transfer of central resources can be broadly classified into tied and flexible grants. The former is a conditional grant which comes with a scheme and has conditionalities. The state has no flexibility in deciding how to spend it. The CSS grants fall under this category.
- **Trends in Tax Devolution:**
 - Under Article 270 of the Constitution, the net proceeds of all taxes levied by the union, except surcharges and cesses are shareable with the states after the 80th Constitutional Amendment.
 - **Net proceeds** are defined in Article 279 of the Constitution as gross tax revenue of the centre less surcharges and cesses, and cost of collection. However, the amount of net proceeds is not published in the budget documents of the union. But, the proportion of surcharges and cesses to gross tax revenue of the centre is rising, and this is neutralising the higher shares recommended by the successive finance commissions.
 - Surcharges and cesses are levied for the purpose of the union and are not shareable with the states, according to the provisions of Article 271 of the Constitution.
 - The lack of transparency in computation of net proceeds has also caused losses to the states.
- **FRBM Acts and Asymmetric Impacts:**
 - The FRBM acts were passed at the level of the centre and the states in the beginning of the 2000s.
 - It laid emphasis only on achieving targets. In the bargain, if revenues could not be raised, expenditure (even essential) would be cut.
 - The states have been forced to limit their deficits due to sanctions by the finance commissions, whereas the centre is not bound by any such conditionalities.
 - The FRBM review committee recommendations have been unilaterally accepted by the centre without consulting the states. This is against the basic tenets of cooperative federalism.
- **Inefficient Cash Management by States:**
 - The states do not spend essentially due to the fear of the consequences of non-adherence to deficit targets, which are not only a legislative constraint but also a conditionality imposed by the finance commissions.



- The perversity of this is such that states are not only forced to adhere to deficit targets, but also to provide cheap financing to the centre, which has not adhered to deficit targets noted in the FRBM acts.
- **Post-GST Scenario**
 - The voting rights in the GST Council are in the provisions of Article 279A of the Constitution. The states have two-thirds and the centre one-third voting rights. But to pass a resolution, three-fourths majority is required. This in effect confers a **veto power for the centre**, even when states jointly propose a change. The states should be able to adopt a change in their tax structure without the centre's consent. The voting rights envisaged under Article 279A has made this impossible.
 - The committee on **revenue neutral rates (RNR)** of the central government had suggested the apportionment between the states and the centre at 60:40 ratio, as almost 44% of states' own tax revenue was subsumed under the GST as against 28% for the centre. It still retains the power to levy additional excise duty on tobacco products, even though it has been brought under the GST. States do not have such a right.
 - The centre also took a long time in implementing the anti-profiteering clause of the GST.
- **ToR of the Fifteenth Finance Commission:**
 - There is an apprehension that it will reduce the states' capacity to intervene in social and economic sectors.
 - ToR suggests **whether there should be revenue deficit grants** at all. This is ToR is a bolt from the blue with regard to the state finances that are already stressed by the impending pay commission award implementations, the obligation to bear the future interest burden from floating UDAY bonds and stagnation in the GST revenues.
 - The proposed enlargement of restrictive conditions is a move towards fiscal centralisation and acts counter to cooperative federalism.
 - The ToR 7 also mandates the Fifteenth Finance Commission to assess and monitor performance of several aspects, including GST implementation, and other governance and achievement indicators. The finance commission's becoming a monitoring agency of states' performance does not befit its constitutional role.
- **Empowering Local Governments:**
 - The LGs in India are still a shadow of "institutions of self-government" envisaged in the Constitution.
 - A major impediment for substantial progress in decentralisation to LGs is the lack of any initiative to restructure centre-state relations in India.
 - The vast differences in the decentralisation experience across the states, which is the consequence of the varying degrees of political will.

Way forward:

- Perhaps the time has come for the Constitution to be amended and the proportion of shareable taxes that should go to the States fixed at the desired level.
- The shareable tax pool must also include cesses and surcharges as these have sharply increased in recent years. Fixing the ratio at 42% of shareable taxes, including cesses and surcharges, seems appropriate.
- Another possible route is to follow the practice in the U.S. and Canada: of allowing the States to levy tax on personal income, with some limitations.
- The freedom given to the States must be limited. It is important to note that the levy by the Centre and States together should be reasonable. Also once this power is given to the States, the transfers from the Centre need adjustment.
- **Horizontal Distribution:** The ability of bringing about equalisation across States in India has limitations. Even the relatively richer States have their own problems and they feel 'cheated' because of the overuse of the equity criterion. An appropriate balancing of criteria is needed particularly in the context of the rise in unconditional transfers.

Conclusion:

- There is an urgent need to tackle the above challenges in fiscal federalism by using the co-operative federalism to ensure socio-economic development of India.



Q) What is the potential of India's MSME sector ? Discuss the challenges and concerns associated with the growth of MSME sector in India. (250 words)

[Indianexpress](#)

Why this question:

The article discusses the findings of the committee set up to undertake a comprehensive review of the micro, small and medium enterprises (MSME) sector, which has submitted its report to the RBI, It has examined issues such as access to finance and infrastructure bottlenecks that continue to plague the sector.

Key demand of the question:

The answer must discuss in detail the potential of the MSME sector and the challenges it is facing in India.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Begin with some statistics/data related to MSMEs in India.

Body:

Discussion should include the following:

- What are the issues plaguing the MSME sector? – fiscal indiscipline, lack of infrastructure, Limited capital and knowledge and Non-availability of suitable technology are few critical issues in this sector, Ineffective marketing strategy, Constraints on modernization and expansions and Non-availability of skilled labour at affordable cost.
- Explain the potential it holds in India.
- Then move on to discuss what measures need to be considered? What needs to be done?

Conclusion:

Conclude by stating that the only way to create millions of jobs with decent wages is a policy re-imagination of the rights, needs, and treatment of formal MSME entrepreneurs.

Introduction:

- Micro, Small & Medium enterprises (MSME) termed as “**engine of growth**” for India, has played a prominent role in the development of the country in terms of creating employment opportunities.
- The government, in conjunction with the Reserve Bank of India (RBI), has now launched a series of measures to alleviate their distress.

Body:

Potential of India's MSME sector:

- **Contribution to GDP:** The share of MSMEs in the **country's gross value added is estimated to be about 32%.**
- **Leveraging Exports:** It also contributes about **40% to total exports and 45% to manufacturing output.**
- **Employment Opportunities:** It employs 60 million people, creates 1.3 million jobs every year and produces more than 8000 quality products for the Indian and international markets.
- **Diversity:** There are approximately 30 million MSME Units in India and is quite diverse in terms of its size, level of technology employed, range of products and services provided and target markets.
- **Fostering Inclusive Growth:** MSME is constructing inclusive growth in numerous ways through promoting non-agricultural livelihood at least cost, unbiased regional development, large female participation, and providing a protection against deflation.

The challenges and concerns associated with the growth of MSME sector:

- **Access to Credit:**
 - According to Economic Survey (2017-18), MSME sector faces a major problem in terms of getting adequate credit for expansion of business activities.
 - The Survey had pointed out that the MSME received only 17.4 per cent of the total credit outstanding.
 - Most banks are reluctant to lend to MSMEs because from the perspective of bankers, inexperience of these enterprises, poor financials, lack of collaterals and infrastructure.
- **Poor Infrastructure:**
 - With poor infrastructure, MSMEs' production capacity is very low while production cost is very high.



- **Access to modern Technology:**
 - The lack of technological know-how and financial constraints limits the access to modern technology and consequently the technological adoption remains low.
- **Access to markets:**
 - MSMEs have poor access to markets. Their advertisement and sales promotion are comparatively weaker than that of the multinational companies and other big companies.
 - The ineffective advertisement and poor marketing channels makes it difficult for them to compete with large companies.
- **Legal hurdles:**
 - Getting statutory clearances related to power, environment, labour are major hurdles.
 - Laws related to the all aspects of manufacturing and service concern are very complex and compliance with these laws are difficult.
- **Lack of skilled manpower:**
 - The training and development programs in respect of MSME'S development has been. Thus, there has been a constant crunch of skilled manpower in MSMEs

Other issues:

- Low ICT usage.
- Low market penetration.
- Quality assurance/certification.
- IPR related issues.
- Quality assurance/certification.
- Standardization of products and proper marketing channels to penetrate new markets.

Measures needed:

- Government of India and banks should design plans and measures to widen easy, hassle-free access to credit.
- The RBI should bring stringent norms for Non-Performing Assets (NPA) and it will help curbing loan defaulters and motivate potential good debts. Further, according to critics, the Credit Guarantee Scheme for MSME (CGTMSE) run by SIDBI is a growing contingent liability and needs to be examined with urgency
- Government should provide enhanced development and upgradation of existing rail & road network and other infrastructure facilities in less developed and rural areas to boost growth and development of MSMEs
- There should proper research and development in respect of innovative method of production and service rendering. Further, the government should promote and subsidise the technical know-how to Micro and small enterprises.
- Government should encourage procurement programme, credit and performance ratings and extensive marketing support to revive the growth of sick units.
- Skill development and imparting training to MSME workers is a crucial step to increase the productivity of the sector. The government should emphasise predominantly on skill development and training programs

Conclusion:

- MSMEs being the growth engine of economy, there is a need to prepare a roadmap for sector in addition to the ad-hoc initiatives undertaken.
- Delineation of the objectives, vision, and mission is necessary to give clarity on the path to be treaded.
- An inclusive, sustainable vision to compete with the global MSMEs, by collaborating the industry groups, researchers, government and other stakeholders is the need of the hour.

TOPIC: Effects of liberalization on the economy, changes in industrial policy and their effects on industrial growth.

Q) What do you understand by Generalized System of Preferences (GSP) ? Discuss the features in detail. Quote the reasons for which US withdrew GSP with India the repercussions of the same and what should India do ? (250 words)

Economictimes

Why this question:

The article brings out a detailed discussion of Generalized System of Preferences (GSP), US-India trade relations amidst US's withdrawal from GSP with India. The US terminated preferential tariffs to Indian exports on Friday after determining that it has not committed to provide "equitable and reasonable access to its markets" for the US.



Key demands of the question:

The answer should discuss the concept of Generalized System of Preferences (GSP), reasons of failure of the agreement between India and US, what are the repercussions of the same on India and what should India do to overcome the concerns posed by such a system.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Define what you understand by GSP.

Body:

Answer must discuss the following:

- The Generalized System of Preferences (GSP) is a U.S. trade program designed.
- Discuss its Features – These are unilateral, non-reciprocal and non-discriminatory benefits extended by U.S. to promote economic growth in the developing world by providing preferential duty-free entry for up to 4,800 products from 129 designated beneficiary countries and territories.
- Timeline: GSP was instituted on January 1, 1976, by the Trade Act of 1974. The GSP program has effective dates which are specified in relevant legislation, thereby requiring periodical reauthorization in order to remain in effect.
- Explain that the US terminated preferential tariffs to Indian exports after determining that it has not committed to provide “equitable and reasonable access to its markets” for the US.
- Some of the key reasons cited by trump administration are trade imbalance with India, no access to Indian market for us dairy, medical device industry and issues related to data localization norms.
- Benefit Restoration: As per US norms, a beneficiary country must meet 15 discretionary and mandatory eligibility criteria established by Congress to qualify for GSP. These include providing the US with equitable and reasonable market access, combating child labour, respecting internationally recognized worker rights and providing adequate and effective intellectual property rights protection.

However, reinstatement of GSP benefits is conditional.

Conclusion:

Conclude with what should be India’s way forward.

Introduction:

- The Generalized System of Preferences (GSP) is a U.S. trade program designed to promote economic growth in the developing world by providing preferential duty-free entry for up to 4,800 products from 129 designated beneficiary countries and territories.
- It was instituted on January 1, 1976, by the Trade Act of 1974. GSP has been given on non-reciprocal basis yet the US has linked it with market access and tariff reduction which is against the basic tenets of GSP.

Body:

Significance of GSP:

- It is an umbrella that comprises the bulk of preferential schemes granted by industrialized nations to developing countries.
- It involves reduced Most Favoured Nations (MFN) Tariffs or duty-free entry of eligible products exported by beneficiary countries to the markets of donor countries.
- Economic growth and development in the developing world by helping beneficiary countries to increase and diversify their trade with the developed nations.
- Employment – Moving GSP imports from the docks to consumers, farmers, and manufacturers supports tens of thousands of jobs in the developed nation.
- Company Competitiveness is boosted by GSP as it reduces costs of imported inputs used by companies to manufacture goods.
- GSP promotes Global values by supporting beneficiary countries in affording worker rights to their people, enforcing intellectual property rights, and supporting the rule of law.



Reasons for withdrawal of GSP:

- The United States of America (USA) President Donald Trump has terminated India's designation as a beneficiary developing nation under the GSP (Generalized System of Preference) trade program with effect from 5th June 2019.
- India no longer complied with the statutory eligibility criteria.
- The trigger for the latest downturn in trade ties was India's new rules on e-commerce that restrict the way Amazon.com Inc. and Walmart-backed Flipkart do business in a rapidly growing online market set to touch \$200 billion by 2027.
- That, coming on top of a drive to force global card payments companies such as Mastercard and Visa to move their data to India and the imposition of higher tariffs on electronic products and smartphones, left a broader trade package the two sides were working on through last year in tatters.

Repercussions of withdrawal of GSP on India:

- India exports nearly 50 products of the 94 products on which GSP benefits are stopped.
- India is the largest beneficiary nation under the GSP scheme and exported goods worth \$6.35 billion to the U.S. under the preferential regime last year.
- This is close to 10% of the goods exported by India to the U.S. While the Indian reaction to the American decision has been mild so far that the Commerce Ministry termed it "unfortunate".
- The GSP removal will leave a reasonable impact on India as the country enjoyed preferential tariff on exports worth of nearly \$ 5.6 billion under the GSP route out of the total exports of \$48 bn in 2017-18.
- Removal of GSP indicates a tough trade position by the US; especially for countries like India who benefited much from the scheme.
- India is the 11th largest trade surplus country for the US and India enjoyed an annual trade surplus of \$ 21 bn in 2017-18.

Way forward:

- Indian exports to the US under GSP program are mostly intermediaries and are not in direct competition with US producers which ultimately benefit US economy.
- The US should consider continuing India's eligibility as a gesture of goodwill that reaffirms its commitment to the mutually beneficial relationship between our two countries.
- GSP remains a central aspect of the overall trade engagement and must remain available for Indian exporters keen to address the US markets.
- India needs to ensure a similar level of economic engagement with the rest of the world.

Q) Do you think Foreign Contribution (Regulation) Act violates international human rights standards on freedom of association? Critically examine. (250 words)

The hindu

Why this question:

Recently Union Home Ministry has warned of taking penal action against NGOs who have changed office bearers without taking its approval.

Key demand of the question:

The answer must evaluate in detail FCRA, and the recent actions taken in this direction by the govt.

Directive word:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer

Introduction:

In a few introductory lines state what is FCRA – The Foreign Contribution Regulations Act (FCRA) is used to regulate foreign contribution (especially monetary donation) provided by certain individuals or associations to NGOs and others within India.

Body:

Answers must discuss the following aspects –

- What are the concerns associated with the FCRA?



- Explain the recent steps taken by the govt. – In a notification, Union Home Ministry said, some incidents have come to light that some NGOs, having registered under Foreign Contribution Regulation Act (FCRA), have changed their office bearers without its approval.
- The Home Ministry said, replacement of key functionaries of FCRA registered organizations without prior permission is a violation of the law.
- The Ministry has asked the NGOs to submit applications for addition or deletion or any change of details about office bearers within one month from the date of issue of notice.
- Conclude with what needs to be done to overcome such concerns and challenges.

Conclusion –

Conclude with way forward.

Introduction:

- Foreign Contribution Regulation Act (FCRA) is a consolidating act passed by the Government of India in the year 2010. It seeks to **regulate the foreign contributions or donations and hospitality (air travel, hotel accommodation etc) to Indian organizations and individuals** and to stop such contributions which might damage the national interest.
- Since the Act is internal security legislation, despite being a law related to financial legislation, it falls into the purview of Home Ministry and not the Reserve Bank of India (RBI). The Home Ministry has warned NGOs, who have changed their office-bearers and key functionaries without informing the Ministry, with penal action, if they fail to do so within a month.

Body:

Need for FCRA:

- It is an act passed for **regulating and prohibiting the acceptance and utilization of foreign contribution or foreign hospitality by companies, associations or individuals for such activities that could prove to be detrimental to the national interest** and for matters connected therewith or incidental thereto.
- The act aims at keeping a check on foreigners influencing the Indian electoral politics, journalists, public servants etc. for wrong purposes or activities detrimental to the public interest.
- Those violating the provisions of FCRA can be jailed up to a term of 5 years

Concerns with FCRA:

The Act imposes various conditions on the use of foreign funds and some of them are as follows:

- The Act permits only NGOs having a definite cultural, economic, educational, religious or social programme to accept foreign contribution, that too after such NGOs either obtain a certificate of registration or prior permission under the Act.
- All funds received by a NGO must be used only for the purpose for which they were received.
- Such funds must not be used in speculative activities identified under the Act.
- Except with the prior approval of the Authority, such funds must not be given or transferred to any entity not registered under the Act or having prior approval under the Act.
- Every asset purchased with such fund must be in the name of the NGO and not its office bearers or members.
- In order to be registered under the FCRA, an NGO must be in existence for at least three years and must have undertaken reasonable activity in its field for which the foreign contribution is proposed to be utilised. Further, it must have spent at least INR 1,000,000 over three years preceding the date of its application on its activities.
- The registration certificate is valid for a period of five years and must be thereafter renewed in the prescribed manner.
- NGOs not eligible for registration can seek prior approval from FCRA for receiving foreign funding. This permission is granted only for a specific amount of foreign funding from a specified foreign source for a specific purpose. It remains valid till receipt and full utilisation of such amount.

FCRA and NGO's:

- NGOs play an important role in the upliftment of the weaker sections of the society and their overall development.
- This is especially true in the case of India, where a vast majority of its population continues to remain under the poverty line and have little or no access to even basic facilities provided by the government.
- Every NGO registered or having prior approval under the Act must file an annual report with the Authority in the prescribed form.
- This report must be accompanied by an income and expenditure statement, receipt and payment account, and balance sheet for the relevant financial year.



- For financial years where no foreign contribution is received, a 'NIL' report must be furnished with the Authority.
- In case of non-compliance with provisions of the FCRA, the government can penalize an NGO. For example, if these NGOs don't file annual returns, the government can issue a show-cause notice and subsequently, suspend or cancel their foreign funding licenses.
- In the last two years, licenses of around 20000 NGOs have been cancelled by the central government after they were found violating various provisions of FCRA act. Hence those NGOs were barred from receiving any foreign funds.

FCRA and spirit of international laws:

- According to the UN Special Rapporteur on the Rights to Freedom of Peaceful Assembly and of Association – the FCRA provisions and rules “are not in conformity with international law, principles and standards” because:
- Access to resources, particularly foreign funding, is a part of the right to freedom of association – is a part of Universal Declaration of Human rights (Article 20), meaning a violation of this right constitutes a human rights violation.
- Restrictions in the name of “public interest” and “economic interest” as listed under the FCRA rules fail the test of “legitimate restrictions”. The terms are too vague and give the state excessive discretionary powers to apply the provision in an arbitrary manner

Way forward:

- A **National Accreditation Council** consisting of academicians, activist, retired bureaucrats should be made to ensure compliance by NGOs.
- There should be better coordination between Ministries of Home Affairs and Finance in terms of monitoring and regulating illicit and unaccounted funds.
- A regulatory mechanism to keep a watch on the financial activities of NGOs and voluntary organizations is the need of the hour.
- Citizens today are keen to play an active role in processes that shape their lives and it is important that their participation in democracy go beyond the ritual of voting and should include promotion of social justice, gender equity, inclusion etc.

Q) What do you understand by cryptocurrency? Do you think legalising the crypto market can help beneficiaries emerge from the shadows and make productive investments in an economy witnessing a digital transformation? Critically analyse. (250 words)

[The hindubusinessline](https://www.insightsias.com/the-hindubusinessline)

Why this question:

The article discusses the current conditions of crypto market world across and the pros and cons associated, it analyses how cryptocurrency is something that can not be rejected as an idea in whole, rather world has to move forward and see it as a possibility with advantages in the ongoing digital transformation.

Key demand of the question:

Explain what you understand by cryptocurrencies; there advantages, disadvantages, debate upon whether they should be allowed.

Directive:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

Begin with brief introduction on what you understand by

Body:

Discussion should include the following: cryptocurrencies – It is a digital currency which allows transacting parties to remain anonymous while confirming that the transaction is a valid one. It is not owned or controlled by any institution – governments or private.

There are multiple such currencies bitcoin, ethereum, ripple are some of the popular ones. Currently, they are neither illegal nor legal in India.



Debate whether they should be used or banned? Discuss the Indian scenario. Weigh the pros and cons, take clues from the article, relate it to the current digital transformation era.

Conclusion:

Conclude with a fair and balanced opinion.

Introduction:

- A cryptocurrency is a digital or virtual currency that uses cryptography for security. Cryptocurrencies use decentralized technology to let users make secure payments and store money without the need to use their name or go through a bank. They run on a distributed public ledger called blockchain, which is a record of all transactions updated and held by currency holders. The most common cryptocurrencies are Bitcoin, Ethereum, Ripple, and Litecoin.
- **Facebook** has announced a digital currency called **Libra** that will roll out for use in 2020 and allow the platform's billions of users across the globe to make financial transactions online.

Body:

Benefits of legalizing the crypto market:

- Proper regulation of these currencies will "promote" a formal tax base, while keeping a tab on their use for illegal activities such as money laundering, terror funding and drug trafficking.
- Trading of bitcoins would be brought under the stock market regulator, Securities and Exchange Board of India (SEBI).
- Bitcoins can be traded on registered exchanges which will promote a formal tax base. Returns from investment in Bitcoins would be taxed.
- Use of bitcoins for illegal activities such as money laundering, terror funding and drug trafficking can be checked.
- If any foreign payment is made through Bitcoins, it would fall under the purview of Foreign Exchange Management Act,
- Cryptocurrencies have gained popularity in the last few years. Currently, they are neither illegal nor legal in many countries including India. The market cap for all crypto-currencies has just crossed \$100 billion, with most of the increase coming in the past few months.
- Banning will give a clear message that all related activities are illegal and will disincentivise those interested in taking speculative risks.
- Regulating the currency instead would signal a boost to blockchain technology, encourage the development of a supervision ecosystem (that tracks legal activities and may also assist in tracking illegal activities) and promote a formal tax base.

However, challenges remain:

- The government is wary that regulation will provide legitimacy to "what is currently ambiguous," and may lead to further rise in its valuation and end up contributing "to the investment bubble".
- A currency that is not based on any real economic activity, unlike a sovereign currency whose value is based on the relative value of a tradeable basket of goods and services, cannot prima facie inspire much comfort.
- Bitcoin's value, astronomical even now at about \$8,300 but much below January 2018's stratospheric levels, is based on demand for a fixed supply of Bitcoins in the future it cannot exceed 21 million in number, of which 18 million has already been mined.
- Cryptos are feared not just for their sheer speculative propensities, but also for their capacity to undermine sovereign currencies (the latter is an exaggerated apprehension).
- Virtual currency is being traded anonymously over the Internet and used for a host of anti-national and illegal activities, from terror funding to illicit trade of arms and drugs and so on.
- The online use of this currency, was without any border restrictions or geographical constraints, resulting in danger to the integrity and sovereignty of the nation.
- However, it does not make sense to go overboard and criminalise merely adventurous crypto speculators. There are no official or other data available that point towards misuse of cryptocurrencies for illegal ends

Measures needed:

- Governments the world over have banned cryptocurrencies as a medium of exchange, and India is no exception.
- Yet in India, an estimated 30 lakh Bitcoins are reportedly in circulation. From a value of a little over ₹60,000 at the start of 2017, the Bitcoin now commands a value of nearly ₹6 lakh, with a global market cap of \$10.2 trillion. Cryptos are recognised in the US as an asset class.



- Firms like Paypal, Uber, Visa and Mastercard have all signed up as part of the consortium to control it. Each has invested \$10 million.
- Criminalising possession of cryptocurrencies will impact such investments.
- Bankers and investors now consider the cryptocurrency market at par with derivatives. The NYSE plans Bitcoin futures through a platform called **Bakkt**.

Conclusion:

- Underlying the crypto movement is a libertarian belief: Cryptos are an alternative asset to fiat currencies; controlled by none, they cannot be manipulated by governments with vested interests.
- Legalising the cryptomarket can help beneficiaries emerge from the shadows and make productive investments in an economy witnessing a digital transformation.
- Crypto conduct calls for regulation, but not outright criminalisation.

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Topic– Inclusive growth and issues arising from it.

Q) India aspires to become \$5 trillion economy by 2024. What measures needs to be taken by both government and private-corporations to achieve this target ? Discuss the long term impact of unsustainable and non-inclusive growth on Indian society. (250 words)

The hindu

Introduction:

- The President of India spoke of India becoming a “Five Trillion Dollar” economy, last month. It was reiterated by the Prime Minister and was even discussed in the NITI Aayog Governing Council meet.
- India is, currently, a \$2.8 trillion economy; to reach the \$5 trillion mark by 2024, the economy would require nominal growth in dollar terms of over 12% a year. To reach \$ 5 Trillion, we need to shift our perspective from policy to projects.

Body:

Measures needed: The Government and the Private sector must work together to bring about the following measures in different sectors:

Agricultural sector:

- Encouraging public and private investments to develop infrastructure like cold chains;
- Special attention for north-eastern, eastern and rain-fed states for augmenting scope of access to institutional credit;
- Rationalisation and targeting of input subsidies towards small and marginal farmers.
- Reform in land leasing laws to promote land consolidation and contract farming.
- Accelerating the pace of public investment in agriculture and ensure greater efficiency in capital use.

Manufacturing Sector:

- A three-pillar strategy to achieve required expansion of output — focus on existing high impact and emerging sectors as well as MSMEs.
- In the defence sector, there is a need to identify key components and systems and encourage global leaders to set up manufacturing base in India by offering limited period incentives.
- Ensure incentives result in technology/process transfer.
- Where applicable, leverage Government purchases (Offset Policy), particularly for technology transfer; and ensure high-quality anchor investors capable of spurring growth of associated suppliers (including MSMEs) and offer limited period incentives to anchors, if required.
- To boost electronics manufacturing, the government should consider offering additional fiscal incentives such as a limited-period tax holiday to players investing more than an identified threshold of investment.
- Similarly for the auto and auto-components sector, encouragement of global leaders for the identified components to set up manufacturing bases, and incentivising players willing to invest more than a threshold in identified areas.
- Measures to boost manufacturing in other areas including aeronautical, space, garments, organic/ayurvedic products besides emerging areas such as biotechnology, electric mobility, unmanned aerial vehicles, medical devices, robotics and chemicals.
- For micro, small and medium enterprises, there is a need to improve access to funding by way of development of SME credit risk databases, SME credit rating, and creation of community-based funds.

Services sector:

- There is a need for focus on champion services sectors like IT, tourism, medical value travel and legal would be required to achieve the expansion of the services sector output and concerted efforts need to be made to increase exports.
- Improving rail connectivity and seamless connectivity to major attractions.
- Facilitating visa regime for medical travel.
- Allowing expatriate professional to perform surgeries in identified hospitals
- E-commerce policy and regulatory framework for logistics segment.
- To promote growth of accounting and financial services, there is a need to pitch for promoting FDI in domestic accounting and auditing sector, transparent regulatory framework, and easing restriction on client base in the accounting and auditing sector.



- To push audio visual services, measures like exploring introduction of insurance in the film industry, promoting private investments in film schools, exploring franchise business models to exploit film franchise, and promoting gaming industry value chains.
- The scope for expansion into advisory, arbitration and mediation services is large and unexplored.
- A clear roadmap for domestic reforms in the sector, liberalisation and promotion of arbitration and mediation services must be developed
- For the education sector, allowing foreign universities to set up campuses in India, easy visa regime for students and education service providers, removing regulatory bottlenecks, providing recognition of online degrees and setting up appropriate evaluation techniques for online courses

Other measures:

- Select sectoral initiatives can be converted into 100 projects.
- Each to be led by a competent leader with proven skills.
- They must report to the PM.
- The regular bureaucracy would facilitate the job of the project leader, who will be free to choose her team.
- States need to recognise their core competence and aim to increase their economy by 2-2.5 times, which is roughly the size of the current deficit.

The long term impact of unsustainable and non-inclusive growth on Indian society:

- An economy, whatever its size, cannot be meaningfully evaluated independently of the extent of presence in it of natural capital.
- Till now, by referring to the imperative for growth, to eradicate poverty, any effort to conserve nature has not just been ignored but treated with derision, by both right and left.
- Two-thirds of the world's most polluted cities are in India, when we accept less than a fifth of its population.
- Air pollution shortens lives and lowers productivity, reducing the capacity to earn a living when alive.
- The poor are the most affected as they cannot afford to live in gated communities that somehow manage to commandeer scarce natural resources. Some part of environmental depletion in India is due to the pursuit of unbridled growth.
- Gender inequality manifested as women having less opportunity in life is not going to go away with a re-distribution of income along class lines or across social groupings.

Way forward:

- India needs to carry out the crucial internal reforms that will allow it to be a productive international player and to take on the leadership roles that so many people across the world hope that it will.
- Any improvement in the life of the majority would require a re-alignment of the growth process so that it is less damaging.
- This would very likely require that we have slower growth but the process can be configured to channel more of it towards poorer groups.
- India could and should aspire to double-digit growth. Without sustained growth at that all levels it has little hope of employing the roughly one million young people who join its workforce every month.
- And unless it takes advantage of its current, favourable demographics it is never likely to emerge as an upper-middle-income economy with a prosperous and thriving middle class.

Q) By considering India's socio-economic conditions into account, how do you define Inclusive Growth ? Discuss how core components of Inclusive growth would help to transform India into New India ? (250 words)

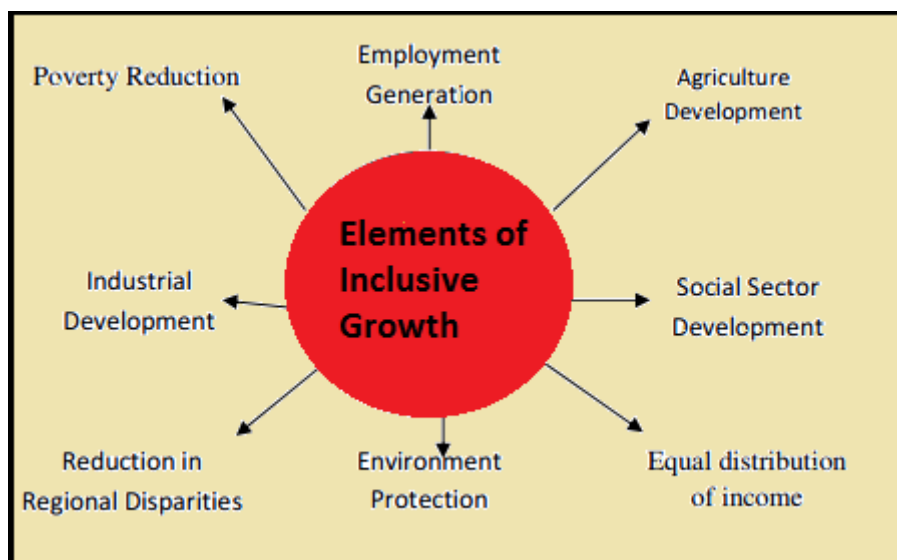
Reference

Introduction:

- The concept of **inclusive growth focuses on equitable growth for all sections of society**. This involves ensuring that fruits of growth and development reach the poor and marginalized sections as well. Inclusiveness is a multi-dimensional concept.
- Inequalities that include, social exclusion, discrimination, restrictions on migration, constraints on human development, lack of access to finance and insurance, corruption – are sources of inequality and limit the prospect for economic advancement among certain segments of the population, thereby perpetuating poverty

**Body:**

- The Twelfth Five Year Plan of the erstwhile Planning Commission highlighted the desirability towards inclusive growth.
- The Plan highlights the objectives of inclusive growth as the following: Inclusive growth should result in lower incidence of poverty, broad-based and significant improvement in health outcomes, universal access for children to school, increased access to higher education and improved standards of education, including skill development.
- It should also be reflected in better opportunities for both wage employment and livelihood, and an improvement in the provision of basic amenities like water, electricity, roads, sanitation, and housing. Particular attention needs to be paid to the needs of the SC/ST and OBC population (Planning Commission 2011).



- Economic policies that encompass growth with equity and social policies that improve the capabilities of the poor and redistributive income policies are vital to reduce poverty and income inequality.
- There is need to spread health and education far more widely amidst the population.
- Economic growth while reducing poverty does not ensure equitable income distribution. The initial conditions of land ownership, education and health and social stratification have an important bearing on the impact of growth on the equitable distribution of incomes.
- Interventionist policies that redistribute resources or entitlements have an important impact on the extent of equity in incomes that is achieved. Improvements in literacy and education reduce inequality of incomes. Public expenditure on these is very important and therefore government revenues must be adequate to enable the fiscal space for such expenditure.
- The manner of raising tax revenue could also be important in reducing inequality. Progressive income tax systems, including recurrent property taxes, high taxes on luxury expenditure of the affluent, capital gains taxes and death duties would enable better income distribution by reducing incomes of the rich and enabling policy interventions that enhance the entitlements of the poor.
- Diversification of agriculture is necessary as without the development of this sector poverty in India cannot be tackled and income inequality cannot reduce.

Steps taken by the government for Inclusive Growth:

The government has realized the importance of inclusive growth and has taken steps accordingly. Some of the steps taken by the government are:

- Sarva Shiksha Abhiyaan
- Right to Education
- Midday meal scheme
- MNREGA
- Housing for All
- Pradhan Mantri Gram Sadak Yojana
- Pradhan Mantri Jan Dhan Yojana
- National Social Assistance Programme
- National Health Mission
- Rashtriya Swasthya Suraksha Yojana



- Pradhan Mantri Jeevan Jyothi Bhima Yojana
- Skill India, Make in India and Digital India
- Right to Information
- Other initiatives like Payment Banks, Small Finance Banks.

Conclusion:

- Inclusive growth is of vital importance to fight inequality in all aspects and promote holistic development of individuals in the country.
- Inclusive growth is necessary for the sustainable and holistic development of all sections of the society. For economic, social and political empowerment of its citizens, the core components of the Inclusive growth must be tackled.

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Topic: Major crops cropping patterns in various parts of the country, different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers

Q) Discuss how has science improved agriculture in India? With the farm sector facing headwinds what structural reforms do you think Indian agriculture requires? Elucidate. (250 words)

Livemint

Why this question:

The question is straightforward and is about discussing the role played by science in improving agriculture and the need for structural reforms in Indian agriculture system.

Demand of the question:

The answer must discuss the role of science and technology in agricultural improvement along with need for structural reforms to move into Agriculture 2.0.

Directive word:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction

Start with facts/data depicting significance of agriculture to Indian economy.

Body

One can have the following points in the answer:

Economic Growth: A good transportation system is an important selling point to communities that desire to attract development that provides for employment and growth of a city. If transport costs due to congestion increase, goods and services produced within that city tend to increase in costs thus losing competitiveness in international markets. Efficient transportation access is therefore a very important consideration as it has a direct impact on sound and sustainable economic growth and productivity. The cost of congestion in the Western Province of Sri Lanka is over Rs 20,000 million per year (around 2 percent of Regional GDP). This includes the cost of productive time and wastage of fuel.

Quality-of-Life: To some people, congested highways are a symptom of deteriorating quality-of-life-in a community. The amount of time that is spent on commuting to and from work is also in reality, time that is taken away from social interactions or pursuit of activities that have a personal value and satisfaction.

First explain the conditions of Indian agriculture, the problems associated, issues and concerns related to structural reforms such as – market, farm incentives, diversification etc. Then move on to explain how the issues can be addressed. Suggest way forward, take hints from the article.

Conclusion

Conclude with significance of structural reforms required and the role played by science in improvising agriculture systems of India.

Introduction:

- Agriculture has always been a lifeline for India. Even though with age, India has made a mark in various spheres and has progressed in the manufacturing sector by leaps and bounds, but agriculture still remains one of the key drivers of the economy.
- Worldwide, India ranks second in farm output and accounts for about 50% of the country's workforce. Federal policy think tank NITI Aayog, chaired by Prime Minister recently decided to set up a task force of state chief ministers and central ministers to prepare a blueprint for structural reforms in agriculture

Body:

Science and Agriculture:

- The real success of scientific farming and use of various technologies in agriculture can be attributed to the Green Revolution. In 1960s when India was grappling with frequent droughts, Green Revolution came as a God's blessing.
- The golden period in the agriculture sector, facilitated in increasing crop yields by manifolds. Improved agronomic technology allowed India to overcome poor agricultural productivity.



- A crucial aspect to the success of the **Green Revolution in India** was the various scientific technologies developed to facilitate more yields. **New farming irrigation methods such as drip irrigation, stronger and more resistant pesticides, more efficient fertilizers, and newly developed seeds helped in proficient crop growth.**
- **Krishi Vigyan Kendras (KVKs)** are the frontline agricultural extension center funded by the Indian Council of Agricultural Research (ICAR). The KVKs focus on training and education of farmers, rural youth, on field demonstration of new and improved farming techniques etc.
- The term “**evergreen revolution**”, coined by agricultural scientist Dr. M. S. Swaminathan, kept India away from large scale import of food. At that time, technology, basically digital in character, like **Remote Sensing, Geographical Information Systems (GIS), Global Positioning System (GPS) and Geo-infomatics** were not available.
- With the country developing the indigenous **Indian Remote Sensing (IRS) satellite program**, the technology started to support the national economy in the areas of agriculture, water resources, forestry and ecology, geology, watersheds, marine fisheries and coastal management.
- In 2000's, the concept of **e-farming or e-agriculture also referred as ICT in agriculture**. E-agriculture focused on the enhancement of agricultural and rural development through improved information and communication processes.
- This involved conceptualizing, designing, developing, evaluating and application of innovative ways to use information and communication technologies (ICTs) in the rural domain, with a primary focus on agriculture.
- During this time India had also started to realise the worth of **geospatial technology** in boosting its economic growth by using the technology in various fields.

However, after nearly four decades into the post green revolution period, the country still grapples with crisis each year in trying to meet the increasing demand for food by its people. **Structural reforms needed** are:

- **Credit, finance and Insurance:**
 - Raising the MSP, price deficiency payments or income support schemes can only be a partial solution to the problem of providing remunerative returns to farmers.
 - A **functional institutional credit system** which is accessible and accountable to all cultivators.
 - This covers not only land-owning farmers but also sharecroppers, tenants, adivasi and women farmers, and animal-rearers.
 - Credit products for agriculture need to be tailor-made based on cropping and rain cycle, specific to a particular region. The regional offices of commercial banks should contribute in this exercise. Registration of all cultivators and providing Kisan credit cards.
 - The period of crop loan should be extendable to four years, given that, on average, every second or third year the spatial distribution of rain pattern is erratic in India.
- **Land holdings:**
 - The average size of farm holdings **declined from 2.3 hectares in 1970-71 to 1.08 hectares in 2015-16.**
 - Policies for land consolidation along with land development activities in order to tackle the challenge of the low average size of holdings.
 - Farmers can **voluntarily come together** and pool land to gain the benefits of size. Through consolidation, farmers can reap the economies of scale both in input procurement and output marketing.
- **Input Costs:**
 - It is more important to make agriculture sustainable by reducing input costs of seeds, fertilizers and other inputs.
 - Investment in infrastructure and research and development are needed.
 - There is a need for collaboration of **industry-academia** for coming out with cost-effective solutions to agrarian distress.
 - There is a need to make a shift from rice and wheat-centric policies to millets, pulses, fruits, vegetables, livestock and fish.
- **Remunerative Prices:**
 - Extending reach of minimum support price which has been dedicated to few crops and in a narrow geographical area is important.
 - Set up of Futures and Trade markets, tie up of farmer and private companies for procurement should be looked into as alternative methods against distress sale.



- **Agro- Produce Marketing and Processing:**
 - The creation of a **competitive, stable and unified national market** is needed for farmers to get better prices.
 - For better price for farmers, agriculture has to go beyond farming and **develop a value chain comprising farming, wholesaling, warehousing, logistics, processing and retailing.**
 - The agro-processing industry and warehousing needs to expand so that agricultural produce can be stored when prices plunge.
 - Promoting viable farmer collectives to act as a “collective voice of marginal and small farmers”.
 - Legislations on the basis of NITI Aayog’s new model law — **Agricultural Produce and Livestock Marketing (Promotion and Facilitating) Act (APLM)** should be enacted in all states.
 - A sustainable solution is market reforms to enable better price discovery combined with long-term trade policies favourable to exports.
- **Technology:**
 - Use water-use efficient technologies that can improve significantly the produce like drip irrigation and sprinkler irrigation.
 - Precision agriculture, GM Crops should be encouraged drought prone areas.
 - Space technology and Mobiles should act as “Eyes and Ears” of the farmers to assist in farming.
- **Distress Management:**
 - Establish farmers’ distress and disaster relief commissions at the national and State levels, based on the model of Kerala Farmers’ Debt Relief Commission.

Conclusion:

- Although Science and Technology did help improve the situation of Agriculture but the farmer income dropped consistently due to a variety of reasons.
- There is a need for implementation of the structural reforms and recommendations of various commissions to realise the **goal of doubling of farmer’s income by 2022.**

Q) Other than pest resistance, what are the prospects for which genetically engineered plants should be cultivated? Discuss the concerns and challenges associated with their cultivation also suggest way forward. (250 words)

The hindu

Why this question:

Recently Farmer groups have alleged that Bt brinjal, a genetically modified variety, is being cultivated illegally in Haryana. India banned Bt brinjal in 2010. The debate around BT brinjal started in 2000 when Mahyco (Maharashtra Hybrid Seeds Co) came up with a GM brinjal. Seeds were exported to Bangladesh and Philippines in 2006, as the civil society resisted field trials in India.

Key demand of the question:

The answer must discuss the prospects, challenges and concerns associated with cultivation of Bt Brinjal.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Begin with brief introduction on the current context of the question.

Body:

Discussion should include the following:

What are Bt crops? What are their prospects?

Issues and concerns associated to their cultivation?

Explain the effect of it on agriculture system; farmer’s income etc. Provide for pros and cons and draw a balanced opinion.

Conclusion:

Conclude with a balanced opinion as to what needs to be done

**Introduction:**

- Genetically engineered crops (GM crops, or biotech crops) are plants used in agriculture, the DNA of which has been modified using genetic engineering methods. In most cases, the aim is to introduce a new trait to the plant which does not occur naturally in the species.
- Examples in food crops include resistance to certain pests, diseases, or environmental conditions, reduction of spoilage, or resistance to chemical treatments (e.g. resistance to a herbicide), or improving the nutrient profile of the crop. Examples in non-food crops include production of pharmaceutical agents, biofuels, and other industrially useful goods, as well as for bioremediation

Body:**Advantages of GM Crops other than pest resistance:**

- **Food Security:** Given the increased growth of global population and increased urbanisation, GM crops offer one of the promising solutions to meet the world's food security needs.
- **Improved Stress Tolerance:** Genes that give greater tolerance of stress, such as drought, low temperatures or salt in the soil, can also be inserted into crops. This can extend their range and open up new areas for food production.
- **Faster Growth:** Crops can be altered to make them grow faster, so that they can be cultivated and harvested in areas with shorter growing seasons. This again can extend the range of a food crop into new areas or perhaps allow two harvests in areas where only one is currently practical.
- **More Nutritious Crops:** Plants and animals can be engineered to produce larger amounts of essential vitamins and minerals, such as iron, helping to solve nutrition problems in some parts of the world. They can also be altered to change the amounts of protein, carbohydrates, and saturated and unsaturated fats that they contain. This could lead to the production of foods designed specifically for a healthy diet for all consumers.
- **Production of Medicines and Vaccines by Crops:** It may be possible to have plants and animals produce useful medicines and even vaccines, so that prevention and treatment of human diseases in some places can be achieved cheaply and efficiently through the diet.
- **Resistance to Herbicides:** Crops can be modified to be resistant to specific herbicides, making it much easier to control troublesome weeds. Farmers can simply apply the weed killer to a crop field, killing the unwanted plants and leaving the food crop unaffected. For example, GM oilseed rapeseed – the source of canola oil – is resistant to one chemical that's widely used to control weeds.
- **Better Tasting Foods:** Foods can be engineered to taste better, which could encourage people to eat more healthy foods that are currently not popular because of their taste, such as broccoli and spinach. It may be possible to insert genes that produce more or different flavours as well.
- **Economic benefits:** GM crops can increase yield and thus income. Genetically modified foods have a longer shelf life. This improves how long they last and stay fresh during transportation and storage.

Concerns/Challenges associated with GM Crops:

- **Human Health Risks:**
 - Potential impact on human health including allergens and transfer of antibiotic resistance markers.
 - The impact of growing GM crops poses risks to human health as their resistance to antibiotics can turn medicines ineffective and may result in the formation of new toxins and allergens.
 - Toxins produced by GM crops can not only affect non target organisms but also pose the danger of unintentionally introducing allergens and other anti-nutrition factors in foods.
- **Bio safety concerns:**
 - They can **reduce species diversity**.
 - For example, Insect-resistant plants might harm insects that are not their intended target and thus result in destruction of that particular species.
 - Cross-pollination in GM crops paves the way for herbicide-resistant super weeds that can further threaten the sustenance of other crops and pests because of its uncontrolled growth
 - GM technology could also allow the transfer of genes from one crop to another, creating "**super weeds**", which will be immune to common control methods.
 - Viral genes added to crops to confer resistance might be transferred to other viral pathogens, which can lead to new and more virulent virus strains.
- **Implications on Farmers and Consumers:**
 - Critics claim that **patent laws give developers** of the GM crops a **dangerous degree of control over the food supply**. The concern is over domination of world food production by a few companies



- **National Institute of Agricultural Economics and Policy Research's** anticipation that Bt brinjal's high yield and increased shelf life will benefit consumers and farmers owing to cut in retail price of brinjals ignores the scenario that companies might charge premium prices for Bt brinjal seeds, in which case farmers may not benefit at all.
- **Economic Concerns:**
 - Introduction of a GM crop to market is a **lengthy and costly process**. It has not resulted in high yields as promised.
 - For instance, the highest yields in mustard are from the five countries which do not grow GM mustard — U.K., France, Poland, Germany and Czech Republic — and not from the GM-growing U.S. or Canada.
- **Inefficient Regulatory system:**
 - Seeing the lapses in the regulatory system and irregularities in the assessment of Bt brinjal (in terms of labelling and unapproved and illegal sowing of GM crops) Parliamentary Standing Committee on Agriculture and the Committee on Science & Technology, Environment and Forests recommended:
 - A thorough probe by a team of eminent independent scientists and environmentalists for commercialization of GM crops.
 - Endorsed labelling GM foods to protect a consumer's right to know.
- **Ethical Concerns:**
 - Violation of natural organisms' intrinsic values by mixing among species.
 - There have also been objections to consuming animal genes in plants

Way Forward:

- The government must take decisions on GM technologies on the basis of scientific evidence.
- Need to start cultivating an environment of openness and transparency to allay genuine fears
- The government should adopt a participatory approach to bring together all stakeholders to develop regulatory protocols that restore trust in the process.
- There is a significant uncertainty over their safety, so precautionary principle is that country shall wait till a broader scientific consensus is achieved.
- Need for better policy, pricing and to rationalize the input costs
- GEAC needs to be a transparent body. it should put it in the public domain that on what grounds it has approved GM mustard
- There has to be strong liability laws if there are any environmental hazards or if something goes wrong in future
- Agriculture is a state subject therefore, it is important for the Centre to take into consideration the views of State Governments as well.
- The Food and Agriculture Organization (FAO) has rightly pointed out in 2004, "Science cannot declare any technology completely risk free. Genetically engineered crops can reduce some environmental risks associated with conventional agriculture, but will also introduce new challenges that must be addressed".

Q) Write a short note on integrated pest management (IPM) also discuss the constraints involved in the same. (250 words)

Reference

Why this question:

The question is straightforward on the concept of IPM.

Key demand of the question:

The answer must discuss in detail the IPM system and the hurdles/challenges involved in practicing it.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Begin with brief introduction on the concept of IPM.

Body:

Discussion should include the following:



What is integrated pest management system? – IPM is a managed pest management system that: eliminates or mitigates economic and health damage caused by pests; minimizes the use of pesticides and the risk to human health and the environment associated with pesticide applications.

What are some methods used in IPM? – methods used in IPM include one or a combination of the following: Cultural control (crop rotation, use of locally adapted or pest resistant/tolerant varieties, sanitation, manipulating planting/harvest dates to avoid pests)

Provide for examples.

Discuss specific challenges involved.

Conclusion:

Conclude with way forward.

Introduction:

- Integrated Pest Management (IPM) is an eco-friendly approach which aims at keeping pest population at below economic threshold levels by employing all available alternate pest control methods and techniques such as cultural, mechanical and biological with emphasis on use of bio-pesticides and pesticides of plant origin like Neem formulations.
- The use of chemical pesticides is advised as a measure of last resort when pest population in the crop crosses economic threshold levels (ETL). IPM is aimed at suppression of pest population below economic threshold level through the adoption of feasible and affordable Good Agricultural Practices and causing least disturbance to the eco system and environment.

Body:

- As per United Nation's **Food' and Agriculture Organization (FAO)**, IPM is defined as: "The careful consideration of all available pest control technique's and subsequent integration of appropriate measures that discourage the development of pest populations and keep pesticides and other interventions to levels that are economically justified and reduce or minimize risks to human health and the environment.
- IPM emphasizes the growth of a healthy crop with the' least possible disruption to agro-ecosystems and encourages natural pest control mechanism".

Constraints involved in IPM:

- More involvement in the technicalities of the method
 - Individual farmers and all those involved in IPM have to be educated about their options in the various methods available, which often take time.
- Time and energy consuming
 - Application of IPM takes time and has to be closely monitored, as the practice of IPM has many different methods integrated in order to provide the most effective pest control methods.
- Different pests have different control methods, and it is necessary to monitor which methods are the best for specific pests.
- Initially complicated decision-making.
- Crop monitoring results that can be difficult to interpret.
- Lack of market rewards for IPM grown product.
- Limited market tolerance to blemishes

ICAR-National Research Centre for Integrated Pest Management (NCIPM), India was established in February, 1988 to cater to the plant protection needs of different agro-ecological zones of the country.

Conclusion:

- The increasing cost of plant protection and accelerating pest incidents make agriculture a risky and less profitable enterprise. At the same time the toxic materials generated from chemical farming pollute the environment and harm consumers' and farmers' health.
- Additionally, from the viewpoint of sustainability, attaining growth while maintaining the natural capital intact, IPM is superior compared to conventional farming. It should, therefore be appreciated and encouraged to a greater extent both by governments and NGOs'.

Extra information: Case Study: integrated pest management in Cotton at Ashta village, Nanded district (Marathwada region), Maharashtra.

The general impacts of the Ashta IPM are as below:

- Conservation and enhancement in the activity of the natural enemies (predators and parasites)
- Reduction in the quantity of chemical insecticides used
- Environmental safety as evident by increase in the number of bird population in the crop.
- Compensatory yields and higher net returns



Q) Discuss the major important cropping patterns of India along with the factors affecting it. (250 words)

Indian geography by Majid Hussain

Why this question:

The question is from the static portions of GS paper III.

Key demand of the question:

The answer must discuss mainly the factors affecting important cropping patterns and the key cropping patterns practiced in the country.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Describe what is a cropping pattern.

Body:

The answer is straightforward and direct in approach, one has to discuss the major cropping patterns of the country. Cropping Pattern mean the proportion of area under different crops at a point of time, changes in this distribution overtime and factors determining these changes. Cropping pattern in India is determined mainly by rainfall, climate, temperature and soil type. Then explain in detail the factors affecting it – natural and man-made.

Conclusion:

Conclude with significance.

Introduction:

- Cropping pattern is a dynamic concept because it changes over space and time. It can be defined as the proportion of area under various crops at a point of time.
- In other words, it is a yearly sequence and spatial arrangement of sowing and fallow on a given area. In India, the cropping pattern determined by rainfall, climate, temperature, soil type and technology.

Body:

Major important cropping patterns of India:

- **Rabi crops** are sown in winter from October to December and harvested in summer from April to June. Some of the important Rabi crops are wheat, barley, peas, gram and mustard. Though, these crops are grown in large parts of India, states from the north and north-western parts such as Punjab, Haryana, Himachal Pradesh, Jammu and Kashmir, Uttarakhand and Uttar Pradesh are important for the production of wheat and other rabi crops. Availability of precipitation during winter months due to the western temperate cyclones helps in the success of these crops. However, the success of the green revolution in Punjab, Haryana, western Uttar Pradesh and parts of Rajasthan has also been an important factor in the growth of the above-mentioned rabi crops.
- **Kharif crops** are grown with the onset of monsoon in different parts of the country and these are harvested in September-October. Important crops grown during this season are paddy, maize, jowar, bajra, tur (arhar), moong, urad, cotton, jute, groundnut and soyabean. Some of the most important rice-growing regions are Assam, West Bengal, coastal regions of Odisha, Andhra Pradesh, Telangana, Tamil Nadu, Kerala and Maharashtra, particularly the (Konkan coast) along with Uttar Pradesh and Bihar. Recently, paddy has also become an important crop of Punjab and Haryana. In states like Assam, West Bengal and Odisha, three crops of paddy are grown in a year. These are Aus, Aman and Boro.
- In between the Rabi and the kharif seasons, there is a short season during the summer months known as the **Zaid season**. Some of the crops produced during 'zaid' are watermelon, muskmelon, cucumber, vegetables and fodder crops. Sugarcane takes almost a year to grow.

Some of the most commonly followed crop patterns:

- **Rice-Wheat:** UP, Punjab, Haryana, Bihar, West Bengal, Madhya Pradesh.
- **Rice-Rice:** Irrigated and Humid coastal system of Orissa, Tamil Nadu, Andhra Pradesh, Karnataka and Kerala.
- **Rice- Groundnut:** Tamil Nadu, Andhra Pradesh, Karnataka, Orissa and Maharashtra
- **Rice-Pulses:** Chhattisgarh, Orissa and Bihar.
- **Maize-Wheat:** UP, Rajasthan, MP and Bihar.



- **Sugarcane-Wheat:** UP, Punjab and Haryana accounts for 68% of the area under sugarcane. The other states which cover the crops are; Karnataka and MP.
- **Cotton-Wheat:** Punjab, Haryana, West UP, Andhra Pradesh, Karnataka, Tamil Nadu.
- **Soya bean-Wheat:** Maharashtra, MP and Rajasthan
- **Legume Based Cropping Systems (Pulses-Oilseeds):** MP, Gujarat, Maharashtra, Andhra Pradesh and Karnataka.

Factors affecting Cropping pattern: Cropping pattern of any region depends upon many factors

- **Physical and Technical Factors:**
 - These include the physical characteristic as soil, climate, weather rainfall etc. In the dry regions where the rainfall is scanty and where there is high uncertainty of monsoons, the dependence is on jowar and bajra. Water logging areas cultivate rice.
 - Cropping pattern also depend upon irrigation facilities. Where ever water is available, not only can a different crop be grown but even double or triple cropping will be possible.
- **Economic Factors:**
 - Economic motivation is the most important in determining the cropping pattern of the country. Among the various economic factors affecting crop pattern, the following are important:
 - **Price and Income Maximisation:** Price variations exert an important influence on acreage shifts. The variation in the inter-crop prices led to shifts in acreage as between the crops.
 - **Farm Size:** There is a relationship between the farm size and the cropping pattern. The small farmers are first interested in producing food grain for their requirements. Small holder therefore devotes relatively small acreage to cash crops than large holders.
 - **Insurance against risk:** The need to minimise the risk of crop failures not only explains diversification but also some specific features of crop patterns.
 - **Availability of Inputs:** Seeds, fertilizers, water storage, marketing, transport etc. also affect the cropping pattern.
 - **Tenure:** Under the crop sharing system, the landlord has a dominant voice in the choice of the cropping pattern and this helps in the adoption of income maximising crop adjustments.
- **Infrastructure facilities:**
 - Irrigation, transport, storage, trade and marketing, post-harvest handling and processing etc
- **Government Policies:**
 - The legislative and administrative policies of the government may also affect the cropping pattern. Food Crops Acts, Land Use Acts, intensive schemes for paddy, for cotton and oilseeds, subsidies affect the cropping pattern.
 - MSP – farmers shifting to wheat, rice
 - Green Revolution – skewed cropping pattern in Northern India towards wheat and rice from coarse cereals and pulses
- **Social factors**
 - Food habits also play a role – East and South India prefers rice as staple food while it is wheat in North India.

Conclusion:

- The cropping pattern in India has undergone significant changes over time. As the cultivated area remains more or less constant, the increased demand for food because of increase in population and urbanisation puts agricultural land under stress resulting in crop intensification and substitution of food crops with commercial crops.

Q) Discuss the role of IT in Agriculture and also explain what are the major challenges in the spread of e-technology to farmers. (250 words)

Reference

Why this question:

The question is from the static portions of GS paper III.

Key demand of the question:

The answer must discuss the role played by IT in augmenting the agriculture system and as well explain the challenges faced in the spread of e-technology to farmers.

**Directive:**

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:**Introduction:**

Begin with brief introduction by explaining the need for e-technology to farmers.

Body:

Discussion should include the following:

Role of IT in agriculture; as a tool for direct Agri productivity and as an indirect tool for empowering farmers.

Major challenges in the spread of e-technology to farmers – lack of literacy to understand the technology, gaps in infrastructure, reach, mobility and connectivity etc.

Explain in detail the associated hurdles.

Conclusion:

Conclude with way forward.

Introduction:

- Information Technology (IT) has long been viewed as having great potential for improving decision making in agriculture. IT has connected the world globally and is now changing our life style and social consciousness dynamically. In all phases of the agricultural industry, information technologies are vital to the management and success of a business. Agriculture has also been greatly influenced by IT.

Body:**Role of IT in Agriculture:**

In the context of agriculture, the potential of information technology (IT) can be assessed broadly under two heads:

- as a **tool for direct contribution to agricultural productivity**
- As an **indirect tool for empowering farmers to take informed and quality decisions which will have positive impact on the way agriculture and allied activities are conducted.**
- Precision farming, popular in developed countries, extensively uses IT to make direct contribution to agricultural productivity. The techniques of remote sensing using satellite technologies, geographical information systems, agronomy and soil sciences are used to increase the agricultural output. This approach is capital intensive and useful where large tracts of land are involved. Consequently it is more suitable for farming taken up on corporate lines.
- The indirect benefits of IT in empowering Indian farmer are significant and remains to be exploited. The Indian farmer urgently requires timely and reliable sources of information inputs for taking decisions.
- Access to technology is one of the most important enablers for smallholders to improve productivity sustainably. Innovative mechanisms for technology transfer are required to bring relevant tools, knowledge and knowhow to farmers.
- Market linkages are common weak points between the smallholders and formal supply chains. Intermediaries are required not only to aggregate production from small-scale growers, but also to provide support and services to ensure the quality and consistency of production.
- ICT applications can foster dissemination of information on technology, market demand and price information; weather, pest, and risk-management information, best practices to meet quality and certification standards.
- To bridge the information gap between the farmers and to build productive and competitive market, different ICT interventions support rural and under-developed markets to become efficient and productive.
- The rapid changes in the field of information technology make it possible to develop and disseminate required electronic services to rural India. The existing bottlenecks in undertaking the tasks need to be addressed immediately.

Challenges in spread of e-technology to farmers:**Mobile Connectivity:**

- Even the masses have access to mobile connectivity, but the potential of the handsets are not yet tapped. This is largely because of the content delivered is often not directly related to their livelihood and environment. Since they need localised news and information directly delivered in their language to meet their daily needs.
- Affordability is a key issue for many potential users. Not everyone can afford handsets; innovative business models adopted by the firms and handsets at low price tag which work for voice and sms based services.



- Other challenge in disseminating agriculture related information is dynamic nature of information. Farming is not so linear but requires constant inputs at every stage where new technological inputs provide better crop outputs.

Internet Connectivity:

- **Haphazard development:**
 - It is observed that some initiatives have already been made to provide IT based services to farmers. However, duplication of efforts are witnessed as most of the services revolve around limited subjects.
 - Keeping in view the giant task involved, it is necessary to form a coordination mechanism to strive for a concerted effort to support farming community in the country. Such a coordination agency may only have advisory powers.
- **User friendliness:**
 - The success of the strategy depends on the ease with which rural population can use the content.
 - This will require easy language, training to farmers and intuitive graphics based presentation.
- **Local languages:**
 - Regional language fonts and mechanisms for synchronisation of the content provides a challenge that needs to be met with careful planning
- **Restrictions:**
 - Information content based on remote sensing and geographical information systems can provide timely alerts to the farmers and also improve the efficiency of administration.
- **Power Supply:**
 - In most of the rural India, power supply is not available for long hours. This will reduce the usefulness of the intended services.
 - Since almost entire country receives sunshine for most part of the year, it is useful to explore solar power packs for UPS as well as for supply of power.
- **Connectivity:**
 - Despite the phenomenal progress made in the recent years, the connectivity to rural areas still requires to be improved.
 - Reliable connectivity is a prerequisite for a successful penetration of IT into rural areas.

Conclusion:

- The use of IT in agriculture has grown rapidly in the past few years. It is increasingly being used to help managers make better decisions.
- However, IT and the problem facing decision makers are constantly changing. Thus, future information systems for research purposes will be significantly different than current systems because of these changes. IT has been one of the most aspired fields in today's world. Integrating IT with agriculture will help any country to regulate its overall economy and trade.

Topic: Agriculture issues; Issues related to direct and indirect farm subsidies and minimum support prices; Public Distribution System- objectives, functioning, limitations, revamping; issues of buffer stocks and food security; Technology missions; economics of animal-rearing.

Q) In India, a large part of the Agri supply chain ecosystem is either in the public sector, or strongly linked to it, do you think private investments in primary agriculture can prove to be a solution to make agriculture more sustainable for the country? Discuss. (250 words)

Reference

Why this question:

The article debates about the role of private investments in agriculture and the possible consequences of it.

Key demand of the question:

The answer must provide for a detailed analysis of possible impact that private investments would have on agriculture in India.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.



Structure of the answer:

Introduction:

Begin with brief background of the context in question.

Body:

Discussion should include the following:

First discuss the gaps in agriculture system of the country – infrastructural gaps, financial gaps, role of government etc.

Then move on to explain what effect would private investment have on India.

Discuss what can be the issues associated to increased private investments.

Link it to doubling of farmer's income and end with a positive note.

Conclusion:

Conclude with way forward.

Introduction:

- In India, a large part of the agri supply chain ecosystem is either in the public sector, or strongly linked to it. The huge scale at which it is done has many chinks in the armour. This has resulted in food quality issues, huge wastage of food, reduced remuneration to farmers and agrarian distress.

Body:

Role of Government:

- The Indian government attempts to insulate the cultivator from price fluctuations by procuring their produce at Minimum Support Prices (MSPs).
- The 7500+ Agricultural Procurement and Marketing Committee (APMC) mandis provide a marketplace for the transaction and the Food Corporation of India (FCI) plays the role of the buyer, storing the procured produce in the relevant warehousing corporation's warehouse.
- Ultimately, this gets distributed through the Public Distribution System (PDS) shops and reaches the consumer. For non-MSP crops, the producer is dependent on the traditional private channels to market her produce.
- Agriculture is a 'state subject' and a large part of investment as well as regulatory progress is happening at the state level.
- Till very recently, regulatory barriers had constrained the development of storage and processing infrastructure but measures like inclusion of agri-warehousing under priority sector lending by RBI, subsidy schemes, tax incentives and the Warehousing Act (which will promote negotiability of warehousing receipts) have helped private players take an active interest in the same.
- The Private Entrepreneur Guarantee Scheme is one such initiative to incentivize private investment for construction of warehouses by private entrepreneurs, with an FCI guarantee to hire them for 10 years, assuring a fair return on investment by the entrepreneur.

Challenges posed due to monopoly of Public sector:

- **Inefficient price signals:** The government has been buying almost one-third of all rice and wheat produced in India through the PDS system, but in other kinds of grains, fruits and vegetables (both being highly perishable), the role of the government is limited. This leads to MSPs being ineffective as both price signals and as insulators from the perspective of the larger agricultural population.
- **Limited reach of mandis:** Also, this procurement system has failed to cover the entire country evenly (back of the envelope calculation suggests that on an average, a farmer needs to travel 12 kms to reach the nearest mandi and more than 50 kms in NE India) while according to the recommendations by National Farmers Commission, availability of markets should be within a 5 km radius.
- **Too many intermediaries, information asymmetry:** The above mentioned problems have led to formation of long marketing channels, with multiple intermediaries, adding to the woes of the producers of perishable agri goods. These intermediaries have led to a cost inflation of ~250% (over the cost of production) and have exacerbated the existing information asymmetries in agriculture, especially for non-MSP crops.
- **Inadequate infrastructure for storage:** The Planning Commission has recently estimated the gap between agri-warehousing supply and demand at 35 mn MT. Currently, public sector agencies like the FCI, Central Warehousing Corporations (CWC) and the various State Warehousing Corporations (SWC) have a storage capacity of 71 mn MT, while the private sector has close to 25 mn MT. To put the scarcity in perspective, food grain stocks held only by the government was 80 mn MT last year (peak) according to the FCI annual report.
- **Skewed distribution of capacity:** Skewed distribution of this capacity is another issue, with North India having access to 60% of the total storage infrastructure. The Planning Commission has recently estimated the gap between agri-warehousing supply and demand at 35 mn MT.



- **Lack of cold storage infrastructure:** India's current cold storage capacity at 25 MT is barely sufficient for 10% of fruit and vegetables produced in the country.
- **Lack of collateral management options:** Collateral management refers to financing of agricultural goods stored at warehouses, and is estimated to be a ~Rs 3,500 cr opportunity by industry sources.

Private investments potential to improve the situation:

- **Comprehensive agriculture logistics solutions:** Private players that provide integrated post harvest management solutions have entered the space to fill these gaps. They could also provide collateral management and other value added services (quality testing, agri insurance, bulk procurement and rural retailing) to its clients.
- **Integrated cold chain solutions:** They could provide customized solutions for cold storage and refrigerated transportation across India for fresh and frozen commodities.
- **Contract Farming:** involved in contract farming and agro processing, working on improving income realizations for small farmers through yield improvements, productivity increases, and consistent produce pricing.
- **Alternate marketplaces:** By providing a way to bypass the long chain of intermediaries by directly connecting buyers and sellers of agricultural produce and allied services, via a web and mobile based information exchange platform.
- **Reducing the information asymmetry:** Riding on the high mobile penetration in rural India private players are working on the problem of information asymmetry for agricultural producers, by making personalized agricultural market information available to the farmers at minimal costs, through a mobile based service.
- **Innovative ICT tools for supply chain management:** A hosted web service for supply chain management, which can be accessed via basic mobile phones and web browsers, which makes it uniquely suitable for in rural markets. It is a configurable service which offers customers the ability to capture and share data in a simple, low-cost way, empowering them to make better logistics decisions.

Conclusion:

- These solutions could lead to better supply chain management in Indian agriculture, reducing inefficiencies and increasing farmer realizations, as well as curbing food waste. A co-ordinated effort with good policies bolstered by logistics of the private players can help in achieving the goal of doubling farmer's income by 2022.

Q) To tackle agrarian distress in a sustainable manner, direct income support to farmers needs to be complemented with reforms in Agriculture marketing and trade policies. Explain. (250 words)

Reference

Why this question:

The question is straightforward and must discuss the approach for sustainable agriculture and suggest solutions for tackling agrarian distress.

Key demand of the question:

The answer must discuss the role of Agri markets, physical infrastructure that needs to be supported along with direct income support to make agrarian distress

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Describe the conditions of agrarian distress.

Body:

The answer must emphasize on the methods of handling agrarian distress in a sustainable manner, one has to elaborate how income transfer alone can not be a fixed one-shot solution to the problems facing agriculture.

Conclusion:

Conclude with importance of having multi-pronged approach to address the distress.

Introduction:

- The **lack of remunerative prices** for the crops is one of the main reasons for Agrarian distress in India today. The various options like **Minimum Support Price** for about 25 crops, **Farm Loan Waiver** schemes undertaken by various state governments have failed to alleviate the problem.



- The NSSO Situation Assessment Survey of Agricultural Households (2013) shows that 52% of farming households are indebted, with rates as high as 89-92% in some States.

Body:

Direct Cash/Intervention Scheme: This involves the **Direct Benefit Transfer (DBT) of the cash to the farmers.**

- It can be enforced to include almost all the farmers who have access to formal banking channels (Jan-Dhan Accounts).
- Provides financial help at proper time/ season and would also **spur the investment cycle in the farm economy.**
- Helps large as well as small farmers and can even be capped to limit unwarrantedly huge transfers to rich farmers.
- The corruption issue can be eliminated as farmers directly get the cash in their accounts.

Examples of Direct Intervention Schemes:

- **Pradhan Mantri Kisan Samman Nidhi** will provide assured income to small and marginal farmers. The amount will be transferred directly into their account in 3 equal instalments. With this decision, all land holding eligible farmer families (subject to the prevalent exclusion criteria) would avail of the benefits under this scheme. It would not only provide assured supplemental income to the most vulnerable farmer families, but would also meet their emergent needs especially before the harvest season.
- The Telangana government's income/investment support through the **Rythu Bandhu Scheme (RBS)**. Telangana started RBS in May 2018, whereby it gave Rs 4,000 per acre to every farmer. This transfer is made twice a year, coinciding with the two cropping seasons. By directly giving cash, the government aims to support the input purchases of farmers. The scheme is said to have reached almost 93 per cent of landowners.
- **Odisha** has launched the **KALIA scheme** that will provide Rs. 10,000 to about 3 million small and marginal farmers for the Rabi and kharif crops.
- **Jharkhand** has announced a Rs. 5,000-per-acre payment to 2.3 m medium and marginal farmers from the next financial year.
- **West Bengal** has announced two new schemes for farmers and farm labourers in the state that entail a payment of Rs.5,000 per acre every year in two instalments besides Rs.2 lakh to the kin of farmers who die due to any reason, including suicide.

However, the other problems like Rigid Market Structure, Middlemen issues, Poor infrastructure and logistics, Information Asymmetry, Government Policies also reveal that the Agricultural Marketing has remained a weak point. This has resulted in poor incomes to farmers despite good produce, gluts in the market leading to price crashes, high amount of food rotting and wastage.

Therefore, there is a need to improve the agricultural marketing too by taking up following measures:

- It is imperative to bring agriculture marketing into the Concurrent or Union list to benefit farmers. This will guarantee remunerative prices to farmers.
- The Committee on Doubling Farmers' Income under the chairmanship of Ashok Dalwai justifies the recommendation saying marketing has no boundaries; this **necessitates a pan-India operation** to meet the demand across the country.
- NITI Aayog's **model Agricultural Produce and Livestock Marketing Act** should be implemented by the states. Further the provisions like facilitating single-point levy of taxes, promoting direct interface between farmers and end-users, and give freedom to farmers to sell their produce to whomsoever and wherever they get better prices.
- e-NAM is a good step in this way. Budget 2018 announced developed **GRAMS** which would be integrated to the e-NAM Structure.
- Promoting warehouse receipts, agro-processing and exports. Warehouse receipts will help farmers defer their sale immediately post harvest, when prices are at their lowest level.
- This will require a consolidation of farm produce, which can be successfully done through farmer-producer organisations.
- Agro-processing and trade will require investment in developing infrastructure.
- Existing agri-export zones need to be revisited and strengthened in this changing scenario.
- States alone cannot revamp the agricultural marketing sector, primarily due to paucity of funds and technology.
- Private investment on a massive scale needs to be invited to upgrade and build large storage and warehousing systems that are climate resilient.

**Conclusion:**

- The agrarian distress is a result of combination of factors. Thus, the need of the hour is a multi-pronged approach tackling the structural issues. It is time to concede that **production and marketing** should march together in order to benefit farmers and consumers. A co-ordinated effort with good policies bolstered by logistics of the private players can help in achieving the goal of doubling farmer's income by 2022.

Q) Agrarian distress is majorly a result of low farm prices and low agricultural productivity. Suggest measures which could help in realizing the goal of doubling farmers' incomes by 2022. (250 words)

Reference**Why this question:**

The question is straightforward and is about discussing extent of agriculture distress.

Key demand of the question:

The answer must discuss the key factors causing the Agrarian distress, and about the demands of urgent policy attention.

Structure of the answer:**Introduction:**

In a few introductory lines discuss the current Agrarian distress facing India.

Body:

In brief discuss –

- The rising demand for farm loan waivers across states show the extent of agriculture distress.
- This agrarian distress demands urgent policy attention on the following lines:
 - raise productivity
 - reduce costs of cultivation by providing quality inputs at subsidised rates
 - provide remunerative prices following the recommendations of the Swaminathan Commission
 - ensure assured procurement of output
 - expand access to institutional credit
 - enhance public investment for infrastructural development
 - institute effective crop insurance systems
 - establish affordable scientific storage facilities and agro-processing industries for value addition etc.
- Suggest what should be the way forward.

Conclusion:

Conclude with what more needs to be done.

Introduction:

- Agrarian distress, in the present context, is mainly in terms of low agricultural prices and, consequently, poor farm incomes. Low productivity in agriculture and related supply side factors are equally important.
- An issue that is connected is the declining average size of farm holdings and the viability of this size for raising farm incomes.

Body:**The critical issues associated with Agricultural Marketing:**

- **Rigid Market Structure:**
 - Prevalence of APMC markets, trader cartels due to which low price for agri produce is offered specially due to bumper crop production.
- **Poor Infrastructure and Logistics:**
 - Lack of diffusion of adequate storage facilities lead to wastage. For instance farmers dump truckloads of vegetables on road.
 - **Food Parks projects** concentrated near to cities and poor maintenance leads to spoilage of the crops.
 - Cold storage units exist in less than one-tenth of the markets and grading facilities in less than one-third; electronic weigh-bridges are available only in a few markets.
- **Government Policies:**
 - The government continues to use old draconian measures, including stocking restrictions and bans on exports and futures trading, to even small increase in food prices. Such steps may bring temporary relief to consumers, but end up hurting farmers.



- **Pro-Consumer bias:**
 - In most years, for the majority of agri-products, the policymakers used restrictive export policies to keep domestic prices low. This showed the pro-consumer bias in the policy complex.
- **Middlemen troubles:**
 - As pointed out by Ramesh Chand, in Punjab, there are as many as 22,000 commission agents and innumerable middlemen in each market.
 - According to Ashok Gulati, former chairman of the Commission for Agricultural Costs and Prices, commission agents in Delhi charge exorbitant fees ranging from 6 per cent to 15 per cent.
- **Information Asymmetry:**
 - A bumper crop can pull down prices in wholesale markets. Price spikes after a poor crop are inevitably dealt with through cheap imports in a bid to protect consumers. The opposite is done less frequently. This is due to lack of information.
 - The bountiful rains of 2016 resulted in record farm output. Prices crashed. Farmers are reported to have not been able to even recover the cost for some crops.
 - The prospects of a good monsoon pushed up rural wages. The reality of rock bottom prices then destroyed profit margins.
- **Aggressive cultivation led to plunge in demand:**
 - Once prices have increased farmers cultivated the crop aggressively leading to plunging of prices.
 - Two years ago, garlic fetched an average Rs 60 per kg rate in Rajasthan's Kota mandi. Enthused by it, farmers in the Hadoti region planted more area, only to see prices halve last May.
 - Similar was the case for other vegetables. Example: Tomato, Toor Dal etc.
- **Farmers income remained low:**
 - India had record food production in 2017-18, but farmers' income remained low and stagnant.
 - According to Ashok Dalwai committee, farmer's income remained about 15-40% of consumer's price.
 - Studies conducted by the International Food Policy Research Institute and World Bank have confirmed this.

Government has set up many committees like **Swaminathan committee** and the recent **Ashok Dalwai committee** to give solutions to agrarian distress in India. The **measures that can help agrarian distress in the country are as follows:**

- **Credit, finance and Insurance:**
 - Raising the MSP, price deficiency payments or income support schemes can only be a partial solution to the problem of providing remunerative returns to farmers.
 - A **functional institutional credit system** which is accessible and accountable to all cultivators.
 - This covers not only land-owning farmers but also sharecroppers, tenants, adivasi and women farmers, and animal-rearers.
 - Credit products for agriculture need to be tailor-made based on cropping and rain cycle, specific to a particular region. The regional offices of commercial banks should contribute in this exercise. Registration of all cultivators and providing Kisan credit cards.
 - The period of crop loan should be extendable to four years, given that, on average, every second or third year the spatial distribution of rain pattern is erratic in India.
- **Land holdings:**
 - The average size of farm holdings **declined from 2.3 hectares in 1970-71 to 1.08 hectares in 2015-16**.
 - Policies for land consolidation along with land development activities in order to tackle the challenge of the low average size of holdings.
 - Farmers can **voluntarily come together** and pool land to gain the benefits of size. Through consolidation, farmers can reap the economies of scale both in input procurement and output marketing.
- **Input Costs:**
 - It is more important to make agriculture sustainable by reducing input costs of seeds, fertilizers and other inputs.
 - Investment in infrastructure and research and development are needed.
 - There is a need for collaboration of **industry-academia** for coming out with cost-effective solutions to agrarian distress.
 - There is a need to make a shift from rice and wheat-centric policies to millets, pulses, fruits, vegetables, livestock and fish.



- **Remunerative Prices:**
 - Extending reach of minimum support price which has been dedicated to few crops and in a narrow geographical area is important.
 - Set up of Futures and Trade markets, tie up of farmer and private companies for procurement should be looked into as alternative methods against distress sale.
- **Agro- Produce Marketing and Processing:**
 - The creation of a **competitive, stable and unified national market** is needed for farmers to get better prices.
 - For better price for farmers, agriculture has to go beyond farming and **develop a value chain comprising farming, wholesaling, warehousing, logistics, processing and retailing.**
 - The agro-processing industry and warehousing needs to expand so that agricultural produce can be stored when prices plunge.
 - Promoting viable farmer collectives to act as a “collective voice of marginal and small farmers”.
 - Legislations on the basis of NITI Aayog’s new model law — **Agricultural Produce and Livestock Marketing (Promotion and Facilitating) Act (APLM)** should be enacted in all states.
 - A sustainable solution is market reforms to enable better price discovery combined with long-term trade policies favourable to exports.
- **Technology:**
 - Use water-use efficient technologies that can improve significantly the produce like drip irrigation and sprinkler irrigation.
 - Precision agriculture, GM Crops should be encouraged drought prone areas.
 - Space technology and Mobiles should act as “Eyes and Ears” of the farmers to assist in farming.
- **Distress Management:**
 - Establish farmers’ distress and disaster relief commissions at the national and State levels, based on the model of **Kerala Farmers’ Debt Relief Commission.**

Conclusion:

- Farmers’ distress is due to low prices and low productivity. **Limited procurement, measures to improve low productivity, and consolidation of land holdings to gain the benefits of size, can help in reducing agrarian distress.** It is time to concede that **production and marketing** should march together in order to benefit farmers and consumers. Farmers need to be empowered to decide when, where, to whom and at what price to sell.

Q) What are the major reforms needed in Food Corporation of India to ensure food security in India? Do you think the recommendations of the Shanta Kumar Committee take us in that direction? (250 words)

[pib](#)

Why this question:

Union Minister of Consumer Affairs, Food and Public Distribution laid down the future roadmap for Food Corporation of India (FCI) recently, thus it is essential for us to analyse the major reforms needed in Food Corporation of India to ensure food security in India.

Key demand of the question:

The answer must analyse the major reforms needed in Food Corporation of India to ensure food security in India along with significance of Shanta Kumar committee.

Structure of the answer:

Introduction:

In a few lines state some the role played by FCI.

Body:

The answer must discuss the following:

Discuss the Key highlights of the roadmap:

- Primacy will be given to ensuring that the functioning of FCI is streamlined and fast paced as per recommendations of the Shanta Kumar Committee.
- 100 lakh ton silo storage capacity will be created in the country. For this, RITES has been assigned the task of changing the silo model and they will give their recommendations in 90 days to FCI.
- At present, there are 3 types of labourers in FCI namely Departmental, Daily Payment System (DPS) and No work no pay workers along with contractual labour. Government of India is



deliberating to finish the 3 different arrangements and bring all workers of FCI under a single, uniform system which will bring stability of tenure and secured wages for all.

- To improve the usage of Information Technology in FCI, a Human Resource Management System (HRMS) will be implemented, the work for which will begin in August, 2019 and will be completed by August 2020. This move will benefit 22,000 employees in 196 offices of FCI. Then move on to explaining the significance of recommendations made by Shanta Kumar committee.

Conclusion:

Conclude with way forward.

Introduction:

- Food Corporation of India (FCI) was formed in 1960's and was part of larger plan directed toward food security and self-sufficiency. Other major institution was CACP. These two institutions along with MSP regime and Public distribution system were expected to work in tandem. FCI's responsibility was to procure, Store and discharge grains as per policy of the government.
- Over the time, as in other cases these institutions too failed to adapt to changing circumstances such as changing demands of economy. As a result FCI now reels under chronic inefficiency through huge wastages, and storage cost of grains keeps on cumulating.

Body:

Reforms needed in FCI due to:

- **Issues with procurement:**
 - Open-ended Procurement: All incoming grains accepted even if buffer stock is filled creating a shortage in the open market.
 - The recent implementation of Nation food security act would only increase the quantum of procurement resulting in higher prices for grains.
 - The gap between required and existing storage capacity.
- **Issues with storage:**
 - Inadequate storage capacity with FCI.
 - Food grains rotting or damaging on the CAP or Cover & Plinth storage.
- **Issues with allocation of food grains:**
 - Inaccurate identification of beneficiaries.
 - Illicit Fair Price shops: The shop owners have created a large number of bogus cards or ghost cards(cards for nonexistent people) to sell food grains in the open market.
- **Issues with transportation:**
- Leakages in food grains distribution to be reduced as most leakages in PDS takes place in initial stages.

The government had set up a **six-member committee under Shanta Kumar** to suggest restructuring or unbundling of FCI to improve its financial management and operational efficiency in procurement, storage and distribution of food grains.

Important recommendations made:

- Reduce the number of beneficiaries under the Food Security Act—from the current 67 per cent to 40 per cent.
- Allow private players to procure and store food grains.
- Stop bonuses on minimum support price (MSP) paid by states to farmers, and adopt cash transfer system so that MSP and food subsidy amounts can be directly transferred to the accounts of farmers and food security beneficiaries.
- FCI should involve itself in full-fledged grains procurement only in those states which are poor in procurement. In the case of those states which are performing well, like Haryana, Punjab, Andhra Pradesh, Chhattisgarh, Madhya Pradesh and Odisha, the states should do the procurement.
- Abolishing levy rice: Under levy rice policy, government buys certain percentage of rice (varies from 25 to 75 per cent in states) from the mills compulsorily, which is called levy rice. Mills are allowed to sell only the remainder in the open market.
- Deregulate fertiliser sector and provide cash fertiliser subsidy of Rs 7,000 per hectare to farmers.
- Outsource of stocking of grains: The committee calls for setting up of negotiable warehouse receipt (NWR) system. In the new system, farmers can deposit their produce in these registered warehouses and get 80 per cent of the advance from bank against their produce on the basis of MSP.



- Clear and transparent liquidation policy for buffer stock: FCI should be given greater flexibility in doing business; it should offload surplus stock in open market or export, as per need.

Government has taken up few of the reforms as follows:

- **Aadhaar Linked and digitized ration cards:** This allows online entry and verification of beneficiary data. It also enables online tracking of monthly entitlements and off-take of foodgrains by beneficiaries.
- **Computerized Fair Price Shops:** FPS automated by installing 'Point of Sale' device to swap the ration card. It authenticates the beneficiaries and records the quantity of subsidized grains given to a family.
- **Direct Benefit Transfer:** Under the Direct Benefit Transfer scheme, cash is transferred to the beneficiaries' account in lieu of foodgrains subsidy component. They will be free to buy food grains from anywhere in the market. For taking up this model, pre-requisites for the States/UTs would be to complete digitization of beneficiary data and seed Aadhaar and bank account details of beneficiaries. It is estimated that cash transfers alone could save the exchequer Rs.30,000 crore every year.
- **Use of GPS technology:** Use of Global Positioning System (GPS) technology to track the movement of trucks carrying food grains from state depots to FPS which can help to prevent diversion.
- **SMS-based monitoring:** Allows monitoring by citizens so they can register their mobile numbers and send/receive SMS alerts during dispatch and arrival of TPDS commodities
- **Use of web-based citizens' portal:** Public Grievance Redressal Machineries, such as a toll-free number for call centers to register complaints or suggestions.

Government has come up with a **roadmap** with the following highlights:

- Primacy will be given to ensuring that the functioning of FCI is streamlined and fast paced as per recommendations of the Shanta Kumar Committee.
- 100 lakh ton silo storage capacity will be created in the country. For this, RITES has been assigned the task of changing the silo model and they will give their recommendations in 90 days to FCI.
- At present, there are 3 types of labourers in FCI namely Departmental, Daily Payment System (DPS) and No work no pay workers along with contractual labour. Government of India is deliberating to finish the 3 different arrangements and bring all workers of FCI under a single, uniform system which will bring stability of tenure and secured wages for all.
- To improve the usage of Information Technology in FCI, a Human Resource Management System (HRMS) will be implemented, the work for which will begin in August, 2019 and will be completed by August 2020. This move will benefit 22,000 employees in 196 offices of FCI.

Conclusion:

- The Committee recommendations however was criticized due to suggestions like limiting NFSA, cash subsidy, privatization of FCI despite suggesting useful reforms to reform FCI, PDS. A closer scrutiny in the recommendation is needed today in times of agricultural distress & drought prone years.

Q) What do you understand by agricultural development? Discuss the role played by NGOs in supporting farmers across the states for agricultural development. (250 words)

[The hindubusinessline](http://www.insightsonindia.com)

Why this question:

The article discusses a specific case study of How an NGO named AHIMSA has been supporting farmer-producer groups across States

Key demand of the question:

The answer must first discuss the concept of agricultural development and analyse the role played by NGOs in agricultural development of the country.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In a few lines define the concept of agricultural development.

Body:

The answer must discuss the following:

- What do you understand by agricultural development?



- What way can civil societies catalyze agriculture development in India?
- Discuss the prevalent issues and challenges facing Indian agriculture.
- One can discuss a case study (say the case study of NGO AHIMSA) and explain how along with efforts of the government on the policy front, such multi stakeholders' approach is crucial to the development of agrarian scenario of the country.

Conclusion:

Conclude with way forward.

Introduction:

- Agriculture development means providing assistance to the crop producers with the help of various agricultural resources. Providing protection, assisting in the research sphere, employing latest techniques, controlling pests and facilitating diversity all fall within the purview of agriculture development.

Body:

Agriculture development includes the following:

- **Irrigation Facilities:** Crop productivity depends not only on the quality of input but also on the irrigation facilities. Therefore, canals, tube wells should be constructed to provide better irrigation facilities for the security of crops. Extensive flood control measures should be adopted to prevent the devastation caused by floods.
- **Institutional Credit:** To save the farmers from the clutches of moneylenders, adequate credit facilities should be made available at reasonable cheap rates in rural areas.
- **Proper Marketing Facilities:** Marketing infrastructure should be widened and strengthened to help the farmers to sell their products at better prices. There should be proper arrangements for unloading of the produce in the markets.
- **Supply of Quality Inputs:** The farmer in the country should be supplied with quality inputs at proper times and at controlled prices. To protect the farmers' exploitation, effective steps are needed to be taken to check the sale of adulterated fertilizers.
- **Transport Facilities:** To facilitate the farmers to produce new farm inputs and enable them to sell their product in markets, villages should be linked with mandies. It would help to raise their income which in turn stimulates the farmer's interest to adopt better farm technology with sufficient income.
- **Agricultural Education:** In a bid to guide and advise the farmers regarding the adoption of new technology arrangements should be made for agricultural education and extension services. It would assist the farmers to take proper crop-care leading to increase in crop productivity.
- **Land Reforms:** It is also suggested that efforts should be made to plug the loopholes in the existing land legislations so that the surplus land may be distributed among the small and marginal farmers.
- **Development of Cottage and Small Scale Industries:** In rural areas, more emphasis should be made to set up cottage and small scale industries. This will raise the income of the peasants and keep them busy during the off season.
- **Co-operative Farming:** To check the sub-division and fragmentation of holding, the movement of co-operative farming should be launched. Co-operative farming would result in the adoption of modern technology on so-called big farms.

Role of NGOs in agricultural development:

- As economic reform and liberalization saw the Government vacating several areas to let private sector entrepreneurship flourish and contribute to the high growth rate of the economy in recent years, a similar paradigm shift is needed to transform NGOs from their dependence on aid and grants from within and outside for transforming the rural scenario in the country.

This is sought to be achieved for the NGOs through engaging them in micro-finance, micro insurance, and micro-entrepreneurship activities for the overall development of the rural areas and to promote the welfare of the people of rural India. Some of the important roles played by NGO are:

- **Livelihood Enhancement:** Contribute to livelihoods by creatively marketing "value-added" cultivated and wild agricultural biodiversity.
- **Conservation:** Conserve local seed diversity, promote an increased reliance on biodiversity-based ecological agriculture, and use these as foundations for endogenous growth and development of rural communities.
- **Sustainable production:** Connect the natural elements—soil, water, air, sunlight, and seed—to ensure an abundance of nutritious food and other basic community needs.
- **Training farmers:** Enhancing the Ability of Farmers to Perform Task by Providing Ample Knowledge about various tasks.



- Create a gender-sensitive environment that enhances women's leadership skills.
- **Skill development:** Working On Skill Development to Empower Farmers With New Skills
- **Digital marketing of produce:** To help farmers by Showing the Right Channel of Market and Contacting Digitally.
- **Creating awareness:** Taking active role in Creating awareness On Different Government Schemes & Techniques for Helping Farmers
- Continue to nurture community participation and assist in building robust community institutions like SHGs, FPOs, Co-operative societies etc.
- NGOs have also developed innovative dissemination methods, relying on farmer-to-farmer contact, whether on a group or individual basis
- NGOs' rapport with farmers has allowed them to draw on local knowledge systems in the design of technology options and to strengthen such systems by ensuring that the technologies developed are reintegrated into them

A host of NGO's across the globe are involved in the above tasks for agricultural development. In the Indian context, few of the notable NGOs are DHAN, NERD, MYRADA, National Agro Foundation, REPCO Foundation for Micro Credit, SEVA etc.

Some of the major initiatives taken up by the NGOs are Watershed development program, Vermi-composting, Bio-fertilizer production training, Micro-finances, Agricultural Co-operatives, Farm Produce Organizations, Extension services etc.

Conclusion:

- Agriculture development should be such that it brings about a revolution in the agriculture industry to give birth to an agriculture which is profit giving and at the same time eco friendly.

Q) What do understand by peri urban agriculture? In what way can it aid in addressing the effects of climate change? Discuss. (250 words)

Reference

Why this question:

The question is based on the concept of 'Peri-Urban Agriculture'. One has to analyse how it would contribute in mitigating the effects of climate change.

Key demand of the question:

The answer must analyse the concept in detail and discuss its contributions in handling the climate change impact.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Describe what is 'Peri-Urban Agriculture'.

Body:

The answer must have the following points of discussions:

Peri-urban agriculture occurs in surrounding the boundaries of cities throughout the world and includes products from crop and livestock agriculture, fisheries and forestry.

It also includes non-wood forest products, as well as ecological services provided by agriculture, fisheries and forestry. Often multiple farming and gardening systems exist in and near a single city.

Green zones around urban areas.

Reduction in phenomenon of Urban heat island.

Lower need for transportation.

Diversification of food basket.

Restrict unplanned urbanization.

Conclusion:

Conclude with urgent need for policy changes like effective legislation, long-term leases, leasing of the plots and gardens through a contract recognized by the municipality and correctly registered to promote participation by potential farmers, vegetable growers and livestock producers

**Introduction:**

- Peri-urban agriculture is defined as agriculture undertaken in places on the fringes of urban areas. It is usually carried out in surrounding the boundaries of cities throughout the world and includes products from crop and livestock agriculture, fisheries and forestry.
- It also includes non-wood forest products, as well as ecological services provided by agriculture, fisheries and forestry. Often multiple farming and gardening systems exist in and near a single city.

Body:**Peri-urban agriculture and mitigation of effects of climate change:**

- **Green zones around urban areas:** Beyond the agro-products provided, trees will help in sustaining ecosystems by acting as carbon sinks, protection of water-supply catchments for the cities, protection against landslides thus helping climate change mitigation.
- **Reduction in phenomenon of Urban heat island:** Due to dense population and use of concrete as building material urban heat islands with higher temperature than surrounding areas are created.
- **Lower need for transportation:** Due to rapid urbanization in the past years, demand for vegetables, fruits and flowers are constantly increasing in these areas. Peri-urban agriculture will reduce the burden on transport, and help in reducing greenhouse gas emissions from cold storages.
- **Diversification of food basket:** Peri-Urban Agriculture can help in climate change adaptation through diversification of food resources for the urban population.
- **Restrict unplanned urbanization:** Unplanned and rapid urbanization causes environmental pollution which causes climate change. Peri-Urban Agriculture will help in creating attractive employment option and prevent the conversion of agricultural land near urban areas into cities and towns

Other merits of Peri-Urban agriculture:

- Urbanisation in India is growing and the problem of food inflation largely rises from the demand-supply gaps in urban areas.
- One way of stabilising the prices of vegetables and fruits in urban areas is to promote peri-urban horticulture by providing the necessary technical and marketing support.
- Decentralised production, as for example in Israel, could be supported by cooperative marketing.
- Urban and peri-urban 'horticulture revolution' could pave the way for more stable prices to the consumer
- At the same time, we should ensure that the quality of the food remains high and free of pesticide residues and other unsafe chemicals.
- Thus, we can ensure stability of supply coupled with high quality and safe food, while contributing to price stability.
- The urban population demands special foods particularly fruits and vegetables. Therefore, a peri-urban farming programme would be timely.

Conclusion:

- With urbanization on the rise, the peri-urban agriculture throws a brilliant opportunity from socio-economic as well as environmental point of view.
- The need of the hour is policy changes like effective legislation for leasing of the plots and gardens through a contract recognized by the municipality and correctly registered to promote participation by potential farmers, vegetable growers and livestock producers.

Q) Discuss the scope of replication of 'White Revolution' in India. (250 words)

Indian Geography by Majid Hussain

Why this question:

The answer must discuss the scope of white revolution.

Key demand of the question:

The answer must evaluate the scope of white revolution in India.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:**Introduction:**

Describe what is white revolution.

**Body:**

The question is direct one has to discuss the success of white revolution in the past and the possible white revolution 2.0 in the coming future.

Students must make use of facts and figures to justify the potential of the revolution in India.

Conclusion:

Conclude with way forward.

Introduction:

- The huge increase in milk supply through concerted efforts on a cooperative level is known as the **White Revolution**. Forty-eight years after **Operation Flood** – that made India the world's largest milk producer – India continues to be on the lookout for the next breakthrough in agricultural produce and productivity.

Body:**Milk production in India:**

- India is the world's largest producer and consumer of dairy products.
- Currently India has 17% of world output of dairy products, surpassing USA in 1998 as world's largest producer of dairy. All this was achieved by operation Flood which was launched in 1970's.
- According to market research company IMARC, the milk and dairy products industry reached Rs7.9 lakh crore in 2017.
- In 2016, the milk sector alone was valued at Rs3 lakh crore and is projected to scale Rs7.3 lakh crore by 2021.
- The per capita milk availability in India has gone up from 126 gm per day in 1960 to 359 gm per day in 2015.

Potential of dairy sector:

- The dairy industry in India is unique. With six lakh villages housing about 90 crore people, dairying is not just a large economic activity but also an integral part of our social and cultural heritage
- Its uniqueness lies in its unifying power, in the fact that no other industry touches lives of millions of farmers, of which 70 per cent are landless.
- Complementing this are Indian climatic conditions that support animal husbandry. Dairy, in effect, could become a great tool for equitable growth and income distribution.
- What remains is providing market access by offering stable and remunerative prices to farmers and encouraging this generations-old sustainable livelihood source.
- Can help small farmers to reduce dependence on crop sales
- Can increase source of income of farmers in low yielding areas like Marathwada, Bundelkhand etc
- India is surrounded by countries and regions that are milk-deficient, such as the Middle East, South Asia and Southeast Asia.
- There is ample scope for export of value-added milk products to Bangladesh, China, Singapore, Thailand, Malaysia, Philippines, Japan, the UAE, Oman and other gulf countries, all of which are located close to India.
- At present, the population of South Asia alone is growing at 1.3 per cent a year; it is likely to be 2.2 billion by 2050. This presents an opportunity for India's dairy industry.

Need for White Revolution 2.0:

- As per UN-DESA estimates, by 2025, India will beat China to become the most populous country in the world with 1.4 billion people.
- Further, by 2060, 56 per cent Indians will reside in urban areas and 44 per cent in rural areas. India is likely to have 143 cities with a population of more than one million by 2060.
- On the other hand, the number of villages will witness only a marginal increase, from 640,000 lakh in 2012 to just 675,000 lakh in 2060.
- This clearly indicates that India will face the problem of 'mouths to feed' growing faster than 'hands to produce'.
- To help alleviate the agrarian distress this is being faced in past 5 years.
- To reduce the malnourishment and increase the "milk security" for every citizen.

Challenges to White Revolution 2.0:

- The Indian cows and buffaloes are generally low yielding and non-descript because of the lack of healthy cattle-feed and fodder, tropical heat and diseases.
- Despite lack of water and gradually declining arable land, dairy farming is on the rise.
- Free trade agreements, or FTAs, for instance, will allow EU government-subsidised products to be imported from Europe with little entry barriers. This will pose a big challenge to cow-farmers.
- Due to unhygienic production, handling conditions and high temperatures, the quality of milk is adversely affected.



- Because of inadequate marketing facilities, most of the marketable surplus is sold in the form of ghee which is the least remunerative of all milk products.

Measures needed:

- Education and Training at Panchayat level for small and medium size farmers
- Subsidizing cattle production and encouraging cattle markets
- Facility of logistics for produced milk
- Improved Veterinary facility specially in artificial insemination of cattle
- Encouraging private sector firm to procure dairy produced at rural level
- Low interest loans for small and medium scale farmers for cattle purchase
- Encouraging rural women to take up animal husbandry
- Insurance of cattle against diseases like Anthrax, Foot and Mouth, Peste des Ruminantes, etc.
- Nurture dairy entrepreneurs through effective training of youth at the village level coupled with dedicated leadership and professional management of farmers' institutions.
- Agricultural practices, sanitation, quality of drinking water & fodder, type and quality of pipelines – all of these need to be aligned to the goal of healthy milk.

Q) Discuss the pattern of land holdings in India and the challenges related to land fragmentation also suggest possible solutions to the problems. (250 words)

A comprehensive geography by Khullar

Why this question:

The question is about dealing the issues related to agriculture with specific focus on land holdings and land fragmentation issues.

Key demand of the question:

The answer must discuss the problems related to land holdings, land fragmentations and their effect on the agriculture practices of the country and farm income.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Begin with brief write up on the current conditions of land holdings.

Body:

Discussion should include the following:

Paint a picture of the current status of land holdings in India, what are the issues associated with it, why is it a cause of concern? What are the challenges posed by it etc.

Then discuss the impact of it on farmers, what needs to be done to overcome the challenges and concerns.

Conclusion:

Conclude with solutions and suggest way forward.

Introduction:

- The term land holding or 'agricultural holding' indicates average size of agricultural land held by the farmers in India.
- The number of small and marginal agricultural land holdings in the country (known as operational holdings) has registered a marginal increase in 2015-16 compared to 2010-11, according to the **Tenth agricultural census**. This means that there are more people who now own smaller parcels of agricultural land.

Body:

Trends in land holding (Agricultural Census 2015-16):

| Classification | Range (ha) | 2010-11 (mn.) | 2015-16 (mn.) | % change |
|----------------|------------|---------------|---------------|----------|
| Small | <1 | 117.25 | 125.86 | 7.34% |
| Medium | 1-4 | 19.72 | 19.3 | -2.13% |
| Large | 4-10 | 0.98 | 0.83 | -15.31% |



- The percentage of land holders who are women has increased from 12.79% in 2010-11 to 13.87% in 2015-16, with a corresponding increase of 1.2 percentage points in the operated area.
- This shows that more and more females are participating in the management and operation of agricultural lands.
- Marginal, small and medium land holdings constitute the lion's share of operated area – large land holdings account for only 9% of the total operational area.
- The average size of operational holdings is highest in Nagaland (5 hectares) and lowest in Kerala (0.18 hectares).
- The total number of land units used for agricultural production has shown a 5% increase in 2015-16 compared to 2010-11.
- The total number of operational holdings in the country has increased from 138 million in 2010-11 to 146 million in 2015-16.
- Uttar Pradesh is home to the largest number of land holders, constituting 16% of the total number.

Land fragmentation

- It refers to the breakdown of the landholdings to smaller, unviable tracts of lands due to inheritance laws.
- The land belonging to the father is equally distributed among his sons. This distribution of land does not entail a collection or consolidated one, but its nature is fragmented.
- Demographic pressure has pushed down the land: man ratio to less than 0.2 hectares of cultivable land per head of rural population.
- It has also progressively pushed down the size structure of landholdings.
- The problem of small and fragmented holdings is more serious in densely populated and intensively cultivated states like Kerala, West Bengal, Bihar and eastern part of Uttar Pradesh where the average size of land holdings is less than one hectare and in certain parts it is less than even 0.5 hectare.
- About 92% of holdings operated by SC groups comprised small and marginal holdings.

Challenges posed by Land fragmentation:

- Sub-division and fragmentation of the holdings is one of the main causes of our low agricultural productivity and backward state of our agriculture.
- A lot of time and labour is wasted in moving seeds, manure, implements and cattle from one piece of land to another.
- Irrigation becomes difficult on such small and fragmented fields.
- Further, a lot of fertile agricultural land is wasted in providing boundaries. Under such circumstances, the farmer cannot concentrate on improvement.
- The farm mechanization cannot be applied in small land holdings.
- Although legislation for consolidation of holdings has been enacted by almost all the states, it has been implemented only in Punjab, Haryana and in some parts of Uttar Pradesh.
- The shrinking of productive agricultural land and land base being utilized for non agricultural purposes also makes the crises of fragmented land holdings multi-dimensional.
- Research suggests that only 14% of marginal and 27% of small holdings were able to get credit from institutional sources whereas about 33% of medium and 29% of large farmers could avail institutional credit in India.
- Producers with small holdings also often face problems due to inefficiencies in transporting their produce leading to increased dependence on middlemen. Therefore, there is loss of income which becomes the middleman's commission.

Measures needed:

- To ensure farmer-centric agricultural development, land consolidation efforts for good quality and efficient farming needs to be undertaken.
- **Cooperative farming:** Cooperative farming is a method wherein farmers pool their resources in certain areas of agricultural activity for mutual benefit.
- **Contract Farming and Collaborative Farming initiatives:** Though contract farming does not directly help in preventing fragmentation, the need of contractual requirements can be a tool for farmers to collaborate for joint cultivation.
- **Corporate farming:** Large corporate and MNCs that are into agricultural supply chain often try to integrate and consolidate their product supply chains to have better control on costs and ensure supply security.



- NGOs, farmer associations and the extension wing of the agricultural ministry at the grass root level should educate small and marginal farmers on the benefits of land consolidation which will reap benefits in scaling up of their operations and increasing profitability.
- India has a robust and effective Panchayati Raj system that is an institutional forum for undertaking developmental projects. Pilot studies of collective farming, structured and monitored by the Panchayats can be undertaken at various gram and zila parishad levels.

Conclusion:

- While Indian agriculture has shown resilience to many shocks that penetrated into the world in the last decade, the farmers are successfully producing crops in spite of many hardships. However, all this will change in the coming decades as growing population, further fragmentation, land conversion will lead to lower productivity, shortage of labour and dwindling natural resources.
- These may put us back in the grip of a perennial food crisis. There is, therefore, a great responsibility on the farming community and the government alike to realize this future shock and take proactive steps to avoid such crises. Consolidation is one such solution theme.



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Topic: Infrastructure: Energy, Ports, Roads, Airports, Railways etc., Investment Models.

Q) What are the challenges facing Indian Telecom sector? Discuss. Also suggest what needs to be done to overcome these challenges. (250 words)

Livemint

Why this question:

The article discusses in detail the challenges that are Indian telecom sector is facing.

Key demand of the question:

One has to detail upon the list of issues Indian telecom sector is facing and suggest what needs to be done.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Begin with brief introduction – quote facts on the current scenario.

Body:

Discussion should include the following:

- Explain Challenges in Telecom Sector – Lack of fixed line penetration, High Right-of-Way (ROW) cost, spectrum allocation, corruption etc.
- Explain the initiatives taken by the government in this direction to resolve the concerns.
- Then move on to suggest solutions as to what can be done.

Conclusion:

Future of Telecom Sector is very bright as its role will be seen in almost everything. A long-term vision plan should be made accordingly. For the time being, the government needs to provide an easy and soothing environment for telecom operators.

Introduction:

- India's telecom industry has been through a paradigm shift over the last three decades.
- The industry has also undergone significant policy and regulatory changes through the years, in essence, leading to a control of market share of services by a few players.
- Despite its considerable place in the Indian economy, the telecom sector is under stress due to mounting debt and other issues.

Body:

The challenges facing Indian telecom sector are:

- **Financial Health of the Sector:** Gross revenue has dropped by 15% to 20% for the year 2017-18 over the preceding year for the incumbents and overall sector revenue has dropped. Also, there is drop in voice and data revenue per user
- **Limited Spectrum Availability:** Available spectrum is less than 40% as compared to European nations and 50% as compared to China. Hence, it is imperative that spectrum auctioning at sustainable prices is the need of the hour. Also, government auction spectrum at an exorbitant cost which makes it difficult for mobile operators to provide services at reasonable speeds.
- **High competition and tariff war:** Competition heating up post entry of Reliance Jio. Other telecom players have to drop in tariff rates both for voice and data
- **Lack of Telecom Infrastructure in Semi-rural and Rural areas:** Service providers have to incur huge initial fixed cost to enter semi-rural and rural areas. Key reasons behind these costs are lack of basic infrastructure like power and roads, resulting in delays in rolling out the infrastructure.
- **Poor fixed line penetration:** India has very little penetration of fixed line in its network whereas, most of the developed countries have a very high penetration of fixed lines
- **High Right-of-Way (ROW) cost:** Sometimes, states governments charge a huge amount for permitting the laying of fibre etc.
- **Lack of trained personnel** to operate and maintain the cellular infrastructure.
- **Delays in Roll Out of Innovative Products and Services:** Substantial delays in roll out of data-based products and services are hampering the progress of telecom sectors. This is primarily due to the non-conducive environment resulting out of government policies and regulations.



- **Low Broad Band Penetration:** Low broadband penetration in the country is a matter of concern and the government needs to do a lot more work in the field to go up in the global ladder.
- **Over the top services:** Over the Top (OTT) applications such as WhatsApp, OLA, Viber and so on do not need permission or a pact with a telecommunications company. This hampers the revenue of telecommunication service provider.
- **License fee:** The license fee of eight per cent of the Adjusted Gross Revenue including five per cent as Universal Service Levy (USL) is one of the highest in the world.

Measures needed:

- **Infrastructure Sharing:** Since telecom business is heavy on capex and as much as 40%– 60% of the Capex is utilized for setting up and managing the Telecom infrastructure. By sharing infrastructure, operators can optimize their capex, and focus on providing new and innovative services to their subscribers.
- **Availability of Affordable Smart Phones and Lower Tariff Rates:** This would increase tele penetration in rural areas.
- **Curb on predatory pricing:** government should fix a minimum price to save the industry from price war
- **Lower License fee:** The license fee of eight per cent of the Adjusted Gross Revenue including five per cent as Universal Service Levy (USL) is one of the highest in the world.
- **Reduce reserve price for spectrum auction:** In the past, some of the operators participated recklessly in these auctions leading to exaggerated prices — much above their true valuations. Reasonable reserve prices for the market mechanisms induce “truthful bidding”, and not leading to “winners’ curse” as witnessed in some of the previous auctions.
- The government should increase the network area through optical fibre instead of copper which is expensive. This is necessary to ensure last mile connectivity.
- The government needs to prepare a ground for easy right-of-way permissions and lower cost of right-of-ways
- The government should spend large on R&D and create an environment that makes India capable of manufacturing and even exporting hardware components like mobile handsets, CCTV Cameras, touch screen monitors etc.

Conclusion:

- Digital India Initiative of government including digital identification and authentication, e-KYC, digital finance depends heavily on the telecom and broadband infrastructure.
- Economic survey 2017-18 also underlined that the ‘crisis’ being faced by telecom sector. Survey added that it has also deeply impacted their investors, lenders, partners and vendors.
- A long term vision plan should be made accordingly. For the time being, the government needs to provide an easy and soothing environment for telecom operators.

Q) Discuss the role played by transport infrastructures in developing financial markets vis-à-vis economic growth. (250 words)

Livemint

Why this question:

The article discusses in detail a study that highlighted how The Golden Quadrilateral highway network spurred greater financial activity but only in areas with existing financial development.

Demand of the question:

The answer must discuss the role played by infrastructures in developing financial markets vis-à-vis economic growth.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction

Start with brief introduction on importance of transport system for economic growth of a country.

Body

One can have the following points in the answer:

Economic Growth: A good transportation system is an important selling point to communities that desire to attract development that provides for employment and growth of a city. If transport costs due to congestion increase, goods and services produced within that city tend to increase in costs thus



losing competitiveness in international markets. Efficient transportation access is therefore a very important consideration as it has a direct impact on sound and sustainable economic growth and productivity. The cost of congestion in the Western Province of Sri Lanka is over Rs 20,000 million per year (around 2 percent of Regional GDP). This includes the cost of productive time and wastage of fuel.

Quality-of-Life: To some people, congested highways are a symptom of deteriorating quality-of-life-in a community. The amount of time that is spent on commuting to and from work is also in reality, time that is taken away from social interactions or pursuit of activities that have a personal value and satisfaction.

- Discuss in detail how investing in infrastructure in regions with basic financial development can help regions overcome barriers to economic growth.
- Explain with the case study of India's Golden Quadrilateral network.
- Discuss the Indian scenario – present status, what more needs to be done in this direction etc.

Conclusion

Conclude that financial markets respond to large infrastructure investments and helps spur real economic outcomes contingent on initial financial sector development

Introduction:

- Infrastructure is a key driver of the overall development of Indian economy.
- It is seen that investments in infrastructure equal to 1% of GDP will result in GDP growth of at least 2% as infrastructure has a “**multiplier effect**” on economic growth across sectors.
- The recent headway made in developing transport infrastructure will prove to be the biggest enabler for growth.

Body:

- The critical role of finance in economic growth is widely acknowledged and developing well-functioning financial markets has become a central focus of economic policies across the world.
- A new World Bank study suggests that investing in infrastructure in regions with basic financial development can help these regions overcome barriers to economic growth.

The role played by transport infrastructures in developing financial markets vis-à-vis economic growth:

- Infrastructure development helps in **poverty reduction** due to its high employment elasticity leading to huge job creation capabilities.
- It also has the **trickle-down effect** as better transportation infra can lead to access to education, health and other basic necessities.
- **Increasing the manufacturing growth** as there is better connectivity, easier movement of goods and services, facilitating private investments
- **It reduces the regional and inter-state disparities** and leads to a balanced economic growth by regional equality.
- Infra sector **has huge spill-over effects** on other sectors of economy. It **has money-multiplier** effect too.
- **Better quantity and quality of infrastructure** can directly raise the **productivity of human and physical capital** and in turn growth of nation.

The progresses made in creating an efficient transport infrastructure in the country are

- At the highest ever pace of construction, more than 35,000 km of national highways has been built in last four and a half years.
- World-class expressways such as the Eastern Peripheral Expressway and Western Peripheral Expressway.
- Technologically sound projects which are engineering marvels such as the Dhola-Sadiya Bridge, Chenani Nashri Tunnel and Bogi-Beel bridge.
- The **Bharatmala Pariyojana** is unique and unprecedented in terms of its size and design, as is the idea of **developing ports as engines of growth under Sagarmala**.
- The development of **111 waterways** for transport, **FASTags** for quicker toll payment and movement of vehicles on highways.
- The promotion of alternative fuels such as **ethanol, methanol, biofuels, and electricity**, as well as innovative modes of travel such as seaplanes and aeroboats. The concept of ‘**waste to wealth**’ is being employed for generating alternative fuels.
- Measures are taken to enhance road safety like the **Motor Vehicles Amendment Bill, The Good Samaritan law etc, reducing congestion and pollution levels and providing roadside amenities**.



- Connectivity to our neighbouring countries using an optimal mix of roads and waterways lie Afghanistan and beyond through Chahbahar, or Bangladesh, Myanmar and Thailand through upcoming highways and waterways.
- A memorandum of understanding (MoU) has been signed with Austrian ropeway company Doppelmayr for building ropeways through congested cities and hilly areas.

Impact of infrastructure projects on financial markets:

- Infrastructure investment can help financial markets converge towards more developed regions.
- Financial markets respond to large infrastructure investments and helps spur real economic outcomes contingent on initial financial sector development.
- Consequently, areas with high initial financial sector development will play an important role in determining where economic activity will grow.
- Caution must be taken against simply investing in large-scale infrastructure and hoping that this will automatically develop financial markets.

Case study: the construction of **India's Golden Quadrilateral central highway network**, together with comprehensive loan data from the Reserve Bank of India, the study finds a disproportionate increase in the number of loans disbursed and average loan size in newly connected districts along India's Golden Quadrilateral network. The improved transportation infrastructure results in increased economic activity which in turn increases bank lending. Importantly, the authors find that these effects were stronger in districts where the banking sector and financial institutions were already sufficiently developed

Conclusion:

- An efficient transport infrastructure is the biggest enabler for growth.
- India's growth story should no longer be impeded by a lack of efficient transport infrastructure, and the fruits of this growth should reach everyone in the remotest part of the country.

Q) The mobility landscape in India is undergoing a remarkable and revolutionary change with ecological responsibility and clean mobility making inroads in the country. Analyse in detail the transition from fossil fuels to the electric vehicles. (250 words)

[Livemint](#)

Why this question:

The article talks about the mobility sector and the transformation it is undergoing in India.

Key demand of the question:

The answer must analyse in detail the new agenda that is focusing on electric mobility in India.

Directive:

analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Begin by explaining the statement in the question and suggest its significance.

Body:

Discussion should include the following:

- First quote facts/data related to the transport and mobility sector in India.
- Explain what is the new transformation? Why is it?
- What are the associated challenges/concerns?
- What needs to be done?
- Role of all stakeholders etc.

Conclusion:

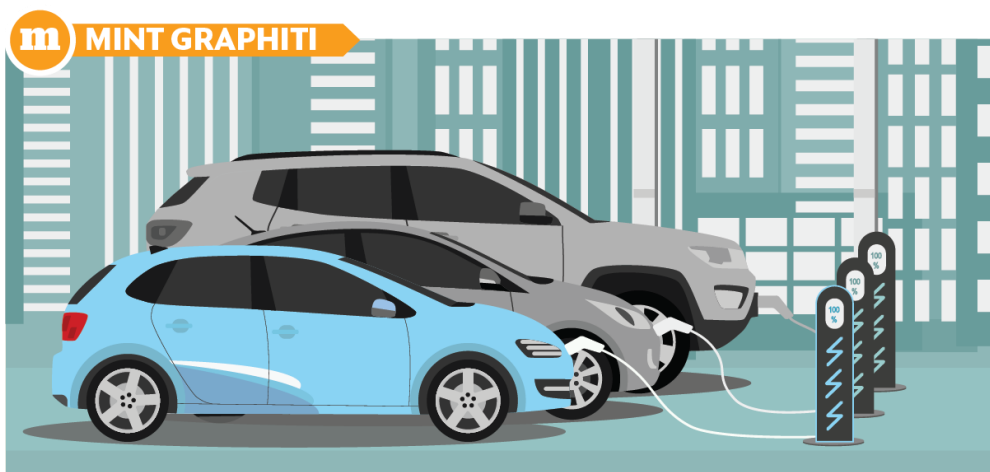
Conclude by stating that the transformation is inevitable given the current circumstances and rising population pressure and their demands.

Introduction:

- Electric vehicles (EVs) are automobiles that run on electricity only. They are propelled by one or more electric motors powered by rechargeable battery packs. Electric vehicles are cleaner than petroleum-fuelled vehicles and are seen as a promising solution to global warming.

**Body:**

- Indian government is making strong push in favour of the electric vehicles or the e-vehicles. Government is also encouraging or sometimes even forcing auto industry to shift towards the e-vehicles. While e-vehicles have their benefits over normal vehicles, the topic of e-mobility seems to be missing from the agenda of the government.
- E-vehicles reduce the localized pollution and are important in the cities like Delhi, Pune, Lucknow etc. Such vehicles would also reduce the dependence on the petroleum, import of which has adverse effect on Indian economy. E-vehicles are also instrumental in reducing the emission of green-house gases and many health hazards.



Building the momentum

The government has been urging the automakers and component manufacturers to invest in development of EVs, and has also sanctioned an outlay of ₹10,000 crore to promote adoption of electric mobility.

Components of EV ecosystem

DEMAND SIDE FACTORS

SUBSIDIES and incentives including fiscal and non-fiscal incentives like registration tax, grants, tax waive-offs, buyback of old vehicles, free parking etc.

DEMAND aggregation like bulk procurement

SUPPLY SIDE FACTORS

MANUFACTURING incentives like provision of land at subsidized rates, tax holiday, special zones

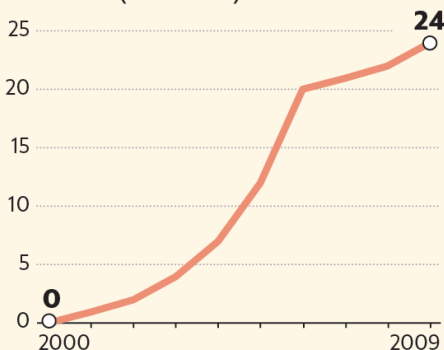
ACCELERATED research and development promoted industry partnerships

ENABLERS

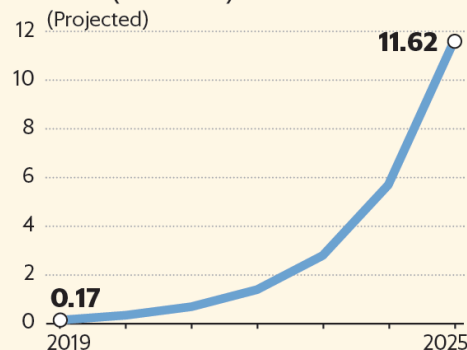
CHARGING infrastructure, institutional mechanisms, technology, financial mechanisms, policy framework

Electric two-wheeler potential

Electric two-wheeler growth in China (in million)



Electric two-wheeler growth in India (in million)



Source: Automotive Component Manufacturers Association of India (ACMA) and Roland Berger



Challenges facing the transition:

- **Price Volatility:**
 - The first has to do with policy volatility. E-mobility is a nascent industry in India and most of the developing countries. Capital costs are high and the payoff is uncertain.
 - Inconsistencies remain. For instance, while electric vehicles are taxed at 12% under the goods and services tax (GST), batteries were taxed at 28% until recently. This has now been lowered to 18% but the discrepancy still exists.
- **Lack of policy certainty: Cannot frame in Isolation:**
 - The lack of policy certainty spills over into perhaps the single most important element of enabling e-vehicle usage: charging infrastructure.
 - Lack of attention on building charging infrastructure.
- **Local and Private Investment results in Low Cost production Technology:**
 - Localization is another tricky area, as the strife caused by the rupee's depreciation has shown.
 - India does not have any known reserves of lithium and cobalt, which makes it entirely dependent on imports of lithium-ion batteries from Japan and China.
- **Short Driving Range and Speed**
 - Most of these cars have range about 50-100 miles and need to be recharged again.
- **Battery Recharge Issues**
 - An electric car takes about 4-6 hours to get fully charged. Therefore there is a need for dedicated power stations as the time taken to recharge them is quite long.
- **Silence as Disadvantage**
 - Silence can be a bit disadvantage as people like to hear noise if they are coming from behind them
 - An electric car is however silent and can lead to accidents in some cases.
- **Limited seating capacity**
 - They are not meant for entire family and a third person can make journey for other two passengers bit uncomfortable.
- **Not Suitable for Cities Facing Shortage of Power**
 - Cities already facing acute power shortage are not suitable for electric cars.
 - The consumption of more power would hamper their daily power needs.
- **High cost**
 - The primary reason for the current high prices of EVs is the expensive battery

Way forward:

- For EVs to contribute effectively, we need commensurate efforts in developing an entire ecosystem.
- Need to shift the focus from subsidizing vehicles to subsidizing batteries because batteries make up 50% of EV costs.
- Increasing focus on incentivizing electric two-wheelers because two-wheelers account for 76% of the vehicles in the country and consume most of the fuel.
- A wide network of charging stations is imminent for attracting investment.
- Work places in tech parks, Public bus depots, and Multiplexes are the potential places where charging points could be installed. In Bangalore, some malls have charging points in parking
- Corporates could invest in charging stations as Corporate Social Responsibility compliances.
- Addressing technical concerns like AC versus DC charging stations, handling of peak demand, grid stability etc.
- Private investment in battery manufacturing plants and developing low cost production technology is needed.
- India is highly dependent on thermal sources, which account for about 65% of current capacity. As EV adoption increases, so should the contribution of renewables.
- Need for a policy roadmap on electric vehicles so that investments can be planned.
- Acquiring lithium fields in Bolivia, Australia, and Chile could become as important as buying oil fields as India needs raw material to make batteries for electric vehicles.
- Providing waiver of road tax and registration fees, GST refunds and free parking spaces for EVs.



Topic: Science and Technology- developments and their applications and effects in everyday life

Q) AI-driven technology will become counterproductive if a legal framework is not devised to regulate it. Discuss. (250 words)

The hindu

Why this question:

The article discusses in detail how AI-driven technology will become counterproductive if a legal framework is not devised to regulate it.

Key demand of the question:

The answer must discuss as to how if AI is not regulated properly, it is bound to have unmanageable implications. One has to explain the nuances of the law to regulate the use of AI.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In a few introductory lines discuss the issues and concerns around using AI.

Body:

In brief discuss what are the possible challenges that could be posed by AI in the absence of proper regulations. Explain predicting and analyzing legal issues and their solutions, however, is not that simple.

Suggest what should be the way forward.

Conclusion:

Conclude with what more needs to be done.

Introduction:

- Artificial Intelligence is a way of making a computer or a software think intelligently, in the similar manner the intelligent humans think. AI is associated with superlative memory, calculative power, decision-making capacity, high speeds of action.
- AI is wholly based on data generated and gathered from various sources and has lot of chances to be in conflict with law. Our laws will eventually need to be amended or new laws for artificial intelligence technologies and processes will need to be adopted to fill up existing lacunae.

Body:

Recent AI developments in India: the various instances below symbolise the arrival of Artificial Intelligence (AI) in everyday lives of human beings.

- Kerala police inducted a robot for police work.
- Around the same time, Chennai got its second robot-themed restaurant.
- Here, robots not only serve as waiters but also interact with customers in English and Tamil.
- In Ahmedabad, a cardiologist performed the world's first in-human tele-robotic coronary intervention on a patient nearly 32 km away.

AI and Legal framework:

- AI systems have the capability to learn from experience and to perform autonomously for humans.
- This also makes AI the most disruptive and self-transformative technology of the 21st century.
- So, if AI is not regulated properly, it is bound to have unmanageable implications.
- g. the consequence if electricity supply suddenly stops while a robot is performing a surgery and access to a doctor is lost
- These questions have already confronted courts in the U.S. and Germany.
- No comprehensive legislation to regulate this growing industry has been formulated in India till date.
- All countries, including India, need to be legally prepared to face such kind of disruptive technology.
- AI is growing multi-fold and we still do not know all the advantages or pitfalls associated with it which is why it is of utmost importance to have a two-layered protection model: one, technological regulators; and two, laws to control AI actions as well as for accountability of errors.

Challenges to AI legal framework:

- Predicting and analysing legal issues in regards with AI use and their solutions are not that simple.
- g. an AI-based driverless car getting into an accident that causes harm to humans or damages property
- In such cases, criminal law may face drastic challenges as the party to be held liable is disputable.



- Legal personhood is inherently linked to individual autonomy but has not been granted exclusively to humans. No law currently in force recognises AI as a legal person.
- Another concern is the ability of an AI to execute and be bound by contracts. While international laws have recognised self-enforcing contracts, there is a need for a comprehensive legislation on the subject.
- Under Indian law only a “legal person” can be competent to enter a valid contract. The general rule thus far has been that an AI may not qualify as a legal person. Hence, a contract entered into by an AI of its own volition may not be regarded as a valid contract in India.
- Another issue that arises is attributing liability to an AI. The general rule has been that since an AI cannot qualify as a legal person, it cannot be held liable in its own capacity.

Way Forward:

- The first need is to have a legal definition of AI in place.
- It is essential to establish the legal personality of AI which means AI will have a bundle of rights and obligations, in the context of India’s criminal law jurisprudence.
- Since AI is considered to be inanimate, a liability scheme that holds the producer or manufacturer of the product liable for harm must be considered.
- Moreover, since privacy is a fundamental right, certain rules to regulate the usage of data possessed by an AI entity should be framed.
- This should be a part of the Personal Data Protection Bill, 2018.

Conclusion:

- The present debate about AI is between human redundancy and evolution of technology. Either way, the reality is that AI has entered the market and, pros and cons aside, the need of the hour is to estimate the problems and have solutions to deal with them in advance.

Extra information:

Case study: Let’s take the example of AI in the form of personalised chatbots. Chatbots are chat-based interfaces which pop up on websites with which customers can interact. These chatbots can either follow a scripted text or through machine learning (ML) and increased interaction deviate from the standard questions to provide a more human-like interaction. In the course of communicating with the chatbot, if a person were to divulge sensitive personal information for any reason whatsoever, what happens to this data?

- Disclosure of sensitive personal information in the digital space would fall within the purview of the IT (Reasonable Security Practices and procedures and sensitive personal data or information) Rules, 2011.
- So in the case of an ML chatbot which does not work as per a scripted text and has collected sensitive personal information, who is responsible if Rule 5(3) is breached? The most obvious answer would be the business unit/company because the rules in the 2011 Rules state that “The body corporate or any person who on behalf of the body corporate...” collects information. However, could the business possibly avoid liability by claiming that it was not aware that the chatbot, due to its AI ability of machine learning, had collected sensitive and personal information?
- We do not have any clear provisions for advanced chatbots which do not work on a scripted text. With the lack of a clear provision in the law, accountability may take a hit. Additionally, what happens if an AI robot is given citizenship in India? Who is responsible for their actions? Or in case of autonomous car accidents, who is responsible for damage to property or harm caused or death of a person?

Q) “Rising machine intelligence is a double-edged sword”, Elucidate. (250 words)

[Livemint](#)

Why this question:

The question is straightforward, the article analyses the pros and cons of AI in detail.

Key demand of the question:

Discussion should focus mainly in evaluating the Technology of artificial intelligence.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Begin with brief introduction on what you understand by AI.

Body:



Explain that There has been a growing chorus of alarm about the existential threat of Artificial Intelligence (AI). Eminent personalities such as Stephen Hawking, Steve Wozniak and Elon Musk have come out in public to state that if we continue to blindly develop machine intelligence, we will inevitably get to a point where machine intelligence will exceed that of humans.

Argue both the sides – for and against and form a fair and balanced opinion suggesting a way forward.

Conclusion:

Conclude by reasserting the need to moderate the use of such technologies and need for exercising care to experiment with.

Introduction:

- Machine learning is part of a broader family of machine learning methods based on learning data representations, as opposed to task-specific algorithms. Neural network depicts the complex interlinkages of the different data that is accumulated over time, like in a brain.
- Eminent personalities such as Stephen Hawking, Steve Wozniak and Elon Musk have come out in public to state that if we continue to blindly develop machine intelligence, we will inevitably get to a point where machine intelligence will exceed that of humans.

Body:

Pros of Rising Machine intelligence:

- There is an artificial intelligence (AI)-driven \$15.7 trillion game-changer that is unfolding. Of this, India can claim a \$957 billion boost to its gross domestic product in the next 12-15 years.
- The global digital transformation market is expected to grow from \$ 445.4 billion in 2017 to \$ 2,279.4 billion by 2025.
- The World Economic Forum estimates 133 million new roles may emerge globally in a few years.
- These new jobs will be different and will require higher application of cognitive skills alongside working with deep technologies.
- The race for talent acquisition is intense. Countries have started to put in place national digital skills strategies, including in Asia.
- Increasingly powerful computing devices and networks, digital services, and mobile devices, this can become a reality for people around the world, including those in underdeveloped countries.
- Advances in biomedical sciences can lead to healthier lives and longer life spans. They can lead to innovations in neuroscience, like connecting the human brain to computers to enhance intelligence or experience a simulated world.
- Digital technology can liberate workers from automatable tasks, freeing them to concentrate on addressing more complex business issues and giving them more autonomy.

Cons of Rising Machine intelligence:

- The cutting-edge technologies such as AI will disrupt 70% of market leaders across industries in the next 10 years.
- The **World Economic Forum** estimates 75 million jobs may be displaced globally in a few years.
- McKinsey says globally, 400 to 800 million jobs may be displaced by 2030, requiring as many as 375 million people to switch job categories entirely.
- The **skill gap is significant** and is being acutely felt across industries.
- The economic benefits of the rising AI are becoming more concentrated among a small group.
- This **increasing inequality** can lead to political polarization, social fragmentation, and lack of trust in institutions.
- Technological advances are also broadening the **scope of surveillance**. In the UK today, an estimated 6 million CCTV cameras are recording activity all over the country.
- Public trust in business, government, the media, and even technology is falling**. This is a crisis that is dividing societies and creating instability around the world

Way forward:

- Re-Skilling:**
 - Re-skilling and upskilling will have to be undertaken by every stakeholder.
 - Massive open online courses to re-skill the Workforce participants by companies using their own learning platforms and tapping into their partner networks.
 - Learning has happened in silos where learners have been pitted against one other. This has to morph into a collaborative mindset to create an environment of shared learning.



- Industry needs to have deeper engagements with academia, Centres of Excellence and research labs to reach our optimum potential.
- Universities will have to re-train to ensure students are employable in the digital era.
- **Investment:**
 - Indian IT is taking convincing strides to sustain its position as the preferred transformational partner for global clients. Towards this, investments of about ₹10,000 crore have been earmarked for re-skilling.
 - The government doubled its Digital India budget to \$480 million in 2018-19, which will be used for research and training in deep tech.
- **Initiatives:**
 - The announcement of the National AI Centre, AI portal, and the identification of nine areas to be driven by technology are positive steps towards evangelisation.
 - the Karnataka government along with Nasscom has launched a CoE for data science and AI.
- **Global Approach:**
 - As many as 20 countries across the globe have adopted AI National Strategy. Governments worldwide recognise the inevitable shift and are adopting AI, analytics, and allied technologies to deliver citizen-centric services, including real-time response.

Conclusion:

- We have to consciously build positive values into the technologies we create, think about how they are to be used, and design them with ethical application in mind and in support of collaborative ways of preserving what's important to us.
- This effort requires all stakeholders—**governments, policymakers, international organizations, regulators, business organizations, academia, and civil society**—to work together to steer the powerful emerging technologies in ways that limit risk and create a world that aligns with common goals for the future.

Q) What do you understand by 'Superconductivity' ? Give it uses and applications. also, the claim of superconductivity to work at room temperature has been claimed to be significant, discuss why ? (250 words)

[Indianexpress](https://www.indianexpress.com)

Why this question:

The article discusses the recent research with respect to superconductivity. IISc researchers have reported superconductivity at room temperature. Their finding, now under review, will be a breakthrough if verified.

Key demand of the question:

The answer must explain the concept of superconductivity and the significance of recent discovery in this direction.

Structure of the answer:

Introduction:

Begin with brief introduction on the concept of superconductivity.

Body:

Discussion should include the following:

Superconductivity is a phenomenon which occurs in certain materials and is characterized by the absence of electrical resistivity. Superconductors have the ability to conduct electricity without the loss of energy. Inside a superconductor the behaviour of electrons is vastly different. The impurities and lattice are still there, but the movement of the superconducting electrons through the obstacle course is quite different.

Then move on to explain the merits and demerits, significance.

Conclusion:

Conclude with way forward.

Introduction:

- Superconductivity is a state in which a material shows absolutely zero electrical resistance. While resistance is a property that restricts the flow of electricity, superconductivity allows unhindered flow
- Materials are said to be exhibiting superconductivity when they exhibit the following two characteristics after being cooled below their critical temperature: **zero electrical resistance and expulsion of magnetic fields (Meissner effect).**



- All the electrons align themselves in a particular direction, and move without any obstruction in a “coherent” manner. Because of zero resistance, superconducting materials can save huge amounts of energy, and be used to make highly efficient electrical appliances. IISc researchers have reported superconductivity at room temperature. Their finding, now under review, will be a breakthrough if verified.

Body:

Applications:

- **SQUIDS (Superconducting Quantum Interference Devices)** can be used to take **magnetic cardiograms** based on magnetic fields generated by electrical currents in the heart.
- These are used in the **memory components of computers** and **fast digital circuits** (including those based on Josephson junctions and rapid single flux quantum technology).
- **Transportation:** powerful superconducting electromagnets used in **maglev trains**, magnetic confinement fusion reactors (e.g. tokamaks), and magnets used in particle accelerators
- **Transforming the Electricity Grid:** Superconductor technology provides loss-less wires and cables and improves the reliability and efficiency of the power grid. It saves power and with it the financial savings and the environmental benefits also accrue
- **Medical diagnosis:** One of the first large-scale applications of superconductivity is in medical diagnosis. **Magnetic resonance imaging, or MRI**, uses powerful superconducting magnets to produce large and uniform magnetic fields inside the patient’s body.
- Superconductors are also being employed for **undersea communication, submarine detection and geophysical prospecting**
- **high sensitivity particle detectors, including the transition edge sensor, the superconducting bolometer, the superconducting tunnel junction detector, the kinetic inductance detector, and the superconducting nanowire single-photon detector**
- **rail gun and coilgun magnets**
- **electric motors and generators**

Significance of Superconductivity at room temperature:

- Superconductivity is a phenomenon that, so far, has been possible only at extremely low temperatures, in the range of 100°C below zero.
- In recent years, scientists have been able to find superconductive materials at temperatures that are higher than absolute zero but, in most cases, these temperatures are still below -100°C and the pressures required are extreme.
- Creating such extreme conditions of temperature and pressure is a difficult task.
- The search for a material that exhibits superconductivity at room temperature, or at least manageable low temperatures, has been going on for decades, without success.
- Indian scientists have invented a material using silver nanoparticles embedded in a gold matrix that exhibited superconductivity in room temperature.
- If the claimed discovery were confirmed, it could be one of the biggest breakthroughs in physics in this century so far.

Conclusion:

- Technical barriers have till now hindered the large scale usage of superconductivity phenomenon. With the new discovery, the true potential of super-conductivity can be reached out for socio-economic development of the country.

Topic: Conservation, environmental pollution and degradation, environmental impact assessment

Q) Necessity to view sustainable development from the prism of interest of flora and fauna and not just from the standpoint of human beings is the need of the hour. Discuss. (250 words)

Epw

Why this question:

The article brings out the case study of Reintroduction of the Asiatic Lion and amidst

Key demands of the question:

The answer should discuss the statement and need for eco centric approach.

**Directive:**

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:**Introduction:**

One can start by bringing out the need for such an approach in the current times.

Body:

Answer to the question should highlight the significance of eco-centric approach, necessity to view sustainable development from the prism of interest of flora and fauna and not just from the standpoint of human beings. Specifically with respect to the concept of eco-centrism. One can take hints from the article and discuss the SC verdicts in detail and suggest your opinion in a balanced way.

Conclusion:

Conclude with significance of such conservation efforts.

Introduction:

- The recent controversy over the shifting of mugger crocodiles from their habitat near the Statue of Unity in Gujarat for tourist “safety,” has generated controversy. It is not clear as to whether the legal procedures under the provisions of the Wildlife (Protection) Act, 1972 were followed or not.
- However, the eagerness of the Gujarat government to shift the crocodiles on the presumption that it will cause danger to tourists, is to be contrasted with its vehement opposition to the shifting of few endangered Asiatic lions from Gujarat to a proposed second home in Kuno–Palpur Wildlife Sanctuary in Madhya Pradesh (MP).
- The reluctance of Gujarat to part with Asiatic lions assumes a serious dimension in view of the death of a sizeable number of lions due to the outbreak of suspected canine distemper.

Body:

- The Supreme Court in *Centre for Environmental Law v Union of India* 2013 ruled that Eco-centrism is nature-centred, where humans are part of nature and non-humans have intrinsic value. In other words, human interest does not take automatic precedence and humans have obligations to non-humans independently of human interest. Eco-centrism is, therefore, life-centred, nature-centred where nature includes both humans and non-humans.
- The principle of eco-centrism was relied upon by the Court in highlighting the importance of protecting the fauna and flora
- Sustainable Development and Intergenerational equity presume the superior needs of individuals and distribute the use of natural resources in such a way that it must be fairly conveyed between the present and future generations.

The need for eco-centrism:

- **In ethical terms:** ecocentrism expands the moral community (and ethics) from being just about ourselves. It means we are not concerned only with humanity; we extend respect and care to all life, and indeed to terrestrial and aquatic ecosystems themselves.
- **In evolutionary terms:** ecocentrism reflects the fact *Homo sapiens* evolved out of the rich web of life on Earth – a legacy stretching back an almost unimaginable 3.5 billion years.
- **In spiritual terms:** Many people and some societies have developed ecocentric moral sentiments. There is increasing evidence that ecocentric values are being fused into nature-based, ecocentric spiritualities, many of which are innovative and new. With such spiritualities, even people who are entirely naturalistic in their worldviews, often speak of the Earth and its ecosystems as ‘sacred’ and thus worthy of reverent care and defence
- **In ecological terms:** ecocentrism reminds us that all life is interdependent and that both humans and nonhumans are absolutely dependent on the ecosystem processes that nature provides. An anthropocentric conservation ethic alone is wholly inadequate for conserving biodiversity.

Conclusion:

- The shift has been gradual but steady, but there is still a long way to achieve absolute eco-centrism, if they intend to do so.
- It is imperative that the government and the people realise that the flora and fauna should be at the center of sustainable development for the latter to be successful.



Q) Discuss the potential impact of climate change of world food production. (250 words)

Reference

Why this question:

The article brings out how Climate change is adversely affecting the production of key crops such as wheat and rice, with some countries faring far worse than others.

Key demands of the question:

The answer should evaluate the effect of climate change of world food production.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Discuss briefly the issue of Climate change on a larger picture.

Body:

Answer is straightforward and must discuss the impact of climate change on world food production. Take cues from the article and discuss the impact in detail on different parts of the world.

Conclusion:

Conclude with what should be the solution, what needs to be done.

Introduction:

- Food is one of society's key sensitivities to climate. A year of not enough or too much rainfall, a hot spell or cold snap at the wrong time, or extremes, like flooding and storms, can have a significant effect on local crop yields and livestock production.
- Climate change is adversely affecting the production of key crops such as wheat and rice, with some countries faring far worse than others. This is as per research, published in the journal PLOS ONE.

Body:

- The impacts of climate change on global food production are mostly negative in Europe, Southern Africa, and Australia, generally positive in Latin America, and mixed in Asia and Northern and Central America. The study found that about half of all food-insecure countries are experiencing decreases in crop production — and so are some affluent industrialised countries in Western Europe.

Crops:

- The world's top 10 crops — barley, cassava, maize, oil palm, rapeseed, rice, sorghum, soybean, sugarcane and wheat — supply a combined 83 per cent of all calories produced on cropland. Yields have long been projected to decrease in future climate conditions.
- Studies observed that climate change causes a significant yield variation in the world's top 10 crops, ranging from a decrease of 13.4 per cent for oil palm to an increase of 3.5 per cent for soybean, and resulting in an average reduction of about one per cent of consumable food calories from these top 10 crops.
- Crops like soybean and gram are likely to benefit from higher level of CO₂ in atmosphere, which helps in CO₂ fertilisation
- A recent study of global vegetable and legume production concluded that if greenhouse gas emissions continue on their current trajectory, yields could fall by 35 percent by 2100 due to water scarcity and increased salinity and ozone.
- Another new study found that U.S. production of corn (a.k.a. maize), much of which is used to feed livestock and make biofuel, could be cut in half by a 4°C increase in global temperatures—which could happen by 2100 if we don't reduce our greenhouse gas emissions.

Other food products:

- Climate change will not only affect crops—it will also impact meat production, fisheries and other fundamental aspects of our food supply.
- Heat waves, which are expected to become more frequent, make livestock less fertile and more vulnerable to disease. Dairy cows are especially sensitive to heat, so milk production could decline.
- 540 million people around the world rely on fish for their protein and income—but seafood will be impacted by climate change, too.
- Warmer waters can alter the timing of fish migration and reproduction, and could speed up fish metabolism, resulting in their bodies taking up more mercury.



- Aquaculture of fresh water species is also affected by sea level rise as saltwater can move upstream in rivers. For example, in the Mekong Delta and Irawaddy region of Vietnam and Myanmar, the booming catfish aquaculture could be affected by saltwater intrusion.

Rising Diseases:

- Climate change will also enable weeds, pests and fungi to expand their range and numbers. In addition, earlier springs and milder winters will allow more of these pests and weeds to survive for a longer time.
- For example, new virulent mutant strains of wheat rust, a fungal infection that had not been seen for over 50 years, have spread from Africa to Asia, the Middle East and Europe, devastating crops.

Economic losses:

- The world population is expected to grow to almost 10 billion by 2050. With 3.4 billion more mouths to feed, and the growing desire of the middle class for meat and dairy in developing countries, global demand for food could increase by between 59 and 98 percent.
- Immediate impact on supply, causing price shocks and volatility that spread across sectors and borders.
- A severe summer drought in 2012 reduced shipping traffic on the Mississippi River, a major route for transporting crops from the Midwest. The decrease in barge traffic resulted in significant food and economic losses. Flooding which followed in the spring caused additional delays in food transport.

Groundwater:

- Groundwater depletion is a slow-building pressure on our food system.
- About 10 percent of the crops grown in the world's major food production regions are irrigated with groundwater that is non-renewable.
- Aquifers are being drained faster than they're refilling—a problem which will only get worse as the world continues to heat up.
- This is happening in major food producing regions such as the U.S. Great Plains and California's Central Valley, and in Pakistan, India, northeastern China, and parts of Iran and Iraq.

Impacts on India's agriculture profile due to climate change:

- India is fortunate to have the monsoon, but it is also uniquely vulnerable to rising temperatures.
- India is ranked **14th on the Global Climate Risk Index 2019**.
- With **rain-fed agriculture** practised in **over 67% of our total crop area**, weather variability can lead to heavy costs, especially for coarse grains (which are mostly grown in rain-fed areas).
- According to one estimate, they may face a **24-58% decline in household income** and **12-33% rise in household poverty** through exacerbated droughts.
- India has **over 120 million hectares suffering from some form of degradation**.
- Rise in average temperatures would significantly impact our kharif crops.
- Any significant decline in summer rains would devastate Indian agriculture. Climate change related phenomena have consequences, especially for marginal farmers.
- They potentially face a huge decline in household income and rise in household poverty through exacerbated droughts.

Way forward:

- Enhancing the resilience of agriculture to cope with the climate change and the climate variability.
- Increasing area under permaculture could result in a total reduction of gigatons of CO₂, from both sequestration and reduced emissions.
- Applying Farm yard Manure, compost or by practising organic farming to improve the soil organic matter which can help in improvement of soil health.
- Develop climate-smart agriculture practices.
- Adoption of Zero Budget Natural Farming (ZBNF) and Organic farming.
- Building on the current crop insurance program, weather-based models and technology need to be used to determine losses and compensate farmers within weeks (Kenya does it in a few days).
- Farmers, especially smallholder farmers, need advance warning of emergent weather conditions at local level.
- Farmers can adapt to climate changes by shifting planting dates and choosing varieties with different growth duration.
- Interventions related to soil health, water harvesting, improved drainage in flood prone area, artificial ground water recharge and water saving irrigation methods.
- An Early warning system should be put in place to monitor changes in pest and disease outbreaks.
- Promoting Drought / temperature tolerant varieties and water saving paddy cultivation methods (System of Rice Intensification (SRI)).



- Investment in R&D is needed to spur innovations in sustainable climate-friendly and climate-proof productivity, and the private sector can help on this.

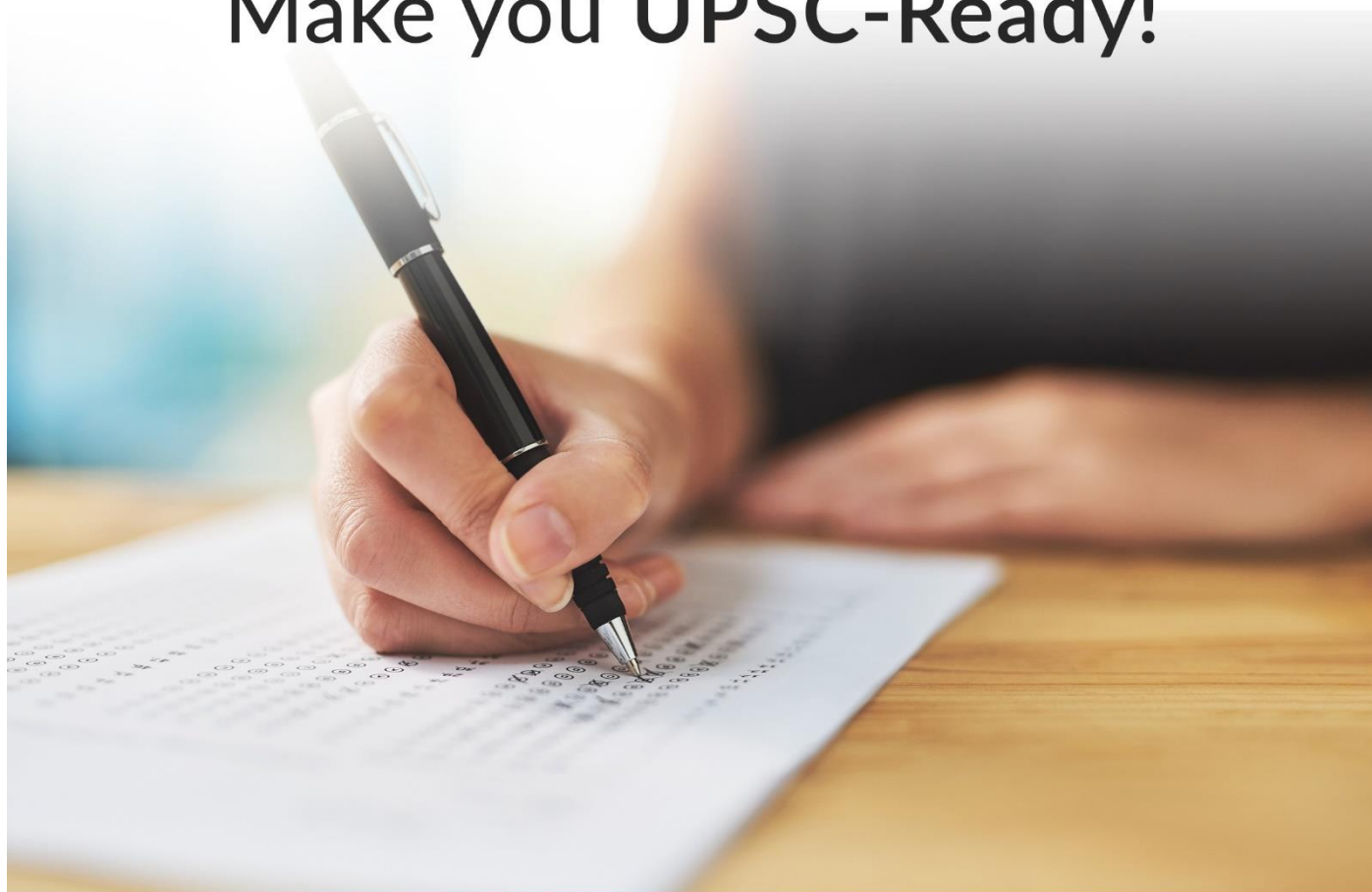


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Q) The Indian fertiliser industry has overlooked the aspects related to environmental pollution, while making improvements in energy efficiency. Critically analyse the statement while suggesting solutions to the problems. (250 words)

Reference

Why this question:

The article captures the pollution caused by the fertiliser industry in detail, it emphasises on the need for a relook at the industry. The industry has been classified under the 'red category' of polluting sectors by the Central Pollution Control Board

Demand of the question:

This question seeks to examine the pollution causing factors of the fertilizer industry

Directive word:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction

Start with brief introduction on the fertilizer industry.

Body

Discussion to the answer must state the factors of pollution that the industry is causing, take cues from the article to discuss various reasons that are causing pollution. Cover multiple aspects and suggest what needs to be done.

Conclusion

Conclude with what needs to be done.

Introduction:

- Indian soils are generally deficient in nitrogen, phosphorus and potassium and do not give high yields. It is, therefore, essential to feed these soils with chemical fertilizers so that their productivity increases. The significant contribution made by the chemical fertilizers can be seen from the impact of the Green Revolution on Indian agriculture. The health and growth of the fertilizer industry is vital for increasing the growth of agricultural sector, to meet the food-grain requirements of increasing population as well as increasing contribution to exports.
- The industry has been classified under the 'red category' of polluting sectors by the Central Pollution Control Board

Body:

Indian Fertiliser industry:

- Fertilizer as an industry is under the control of the Union Government. Urea dominates the sector.
- It is the most produced (86%), the most consumed (74%) and the most imported (52%).
- India's produces about 80 percent of its Urea fertilizer needs.
- And the fertilizer industry has the capacity to indigenously meet 50 percent of the country's phosphatic fertilizers.
- But India still depends heavily on imports for the raw ingredients for its phosphatic and potassium fertilizers.
- The public sector undertakings are playing a dominant role in manufacturing chemical fertilizers.
- At present, there are 11 public sector undertakings under the administrative control of Department of Fertilizers.
- A number of private companies are also engaged in manufacturing fertilizers. E.g.: IEL (Kanpur), SRC (Kota), D.C.M. (Delhi) etc.

Factors of pollution that the industry is causing:

- A study conducted by the Centre for Science and Environment, a New Delhi-based non-profit, under its Green Rating Project (GRP) revealed the dismal state of pollution control by industries.
- Out of 52 per cent plants, assessed in the study, 12 plants received directions or show cause and even closure notices for water pollution and air pollution or solid waste mismanagement.
- There are relaxed norms for the discharge of untreated or partially treated industrial wastewater and emission of air pollutants.
- Management of solid wastes, particularly hazardous waste was also found to be poor.



- Pollutant standards for the sector were revised in 2017, but are still relaxed compared to international standards.
- Nitrogen becomes a pollutant when it escapes into the environment and reacts with other organic compounds.
- Nitrogen compounds running off farmland have led to water pollution problems around the world, while nitrogen emissions from industry, agriculture and vehicles make a big contribution to air pollution.
- While most plants are meeting the particulate matter (PM) standards, inefficient air pollution control devices or improper fuel combustion within the systems have led to high emission levels at some plants.
- There is also no regulation in India for parameters like emissions of gaseous ammonia from urea manufacturing,

Measures needed:

- There is an urgent need for stricter compliance check systems and enforcement of norms.
- The momentum for these changes has to be created through robust policies.
- State Governments and Central Government need to work in tandem to encourage farmers for ecological farming.
- Farmers have to be educated and taught to change their cropping pattern and move to multiple cropping.
- Use of bio-fertilisers should be encouraged.
- There is also a need to shift from fossil fuel based to renewable energy based fertiliser plants.

Conclusion:

- Fertilisers are inevitable in our food security and economy as almost half of population is dependent on it.
- The need of the hour is for better regulation and sustainable ways of producing and using fertilisers which is in sync with SDG 12 (Responsible Consumption and Production).

Q) What do you understand by desertification? List down its causes. Also evaluate the role played by United Nations Convention to Combat Desertification (UNCCD) so far in addressing the concerns posed by desertification world across. (250 words)

Reference

Why this question:

World Day to Combat Desertification and Drought was observed on June 17, 2019 with the theme “Let’s grow the future together”. Thus, it is important for us to evaluate the theme.

Key demand of the question:

One has to discuss in detail the concept of Desertification, causes and the concerns posed by it and then evaluate the role played by UNCCD in addressing these concerns so far.

Directive:

Evaluate – When you are asked to evaluate, you have to pass a sound judgement about the truth of the given statement in the question or the topic based on evidences. You have to appraise the worth of the statement in question. There is scope for forming a personal opinion here.

Structure of the answer:

Introduction:

Begin with brief introduction on the background of the question.

Body:

Discussion should include the following:

- Desertification according to United Nations: Desertification is the degradation of land in arid, semi-arid and dry sub-humid areas. Desertification does not refer to the expansion of existing deserts.
- Causes: It is caused primarily by human activities and climatic variations. It occurs because dryland ecosystems, which cover over one third of the world’s land area, are extremely vulnerable to overexploitation and inappropriate land use.
- Global scenario: According to United Nations, every year, the world loses 24 billion tons of fertile soil and dryland degradation reduces national domestic product in developing countries by up to 8 % annually.
- Goal 15 of the 2030 Agenda for Sustainable Development states our resolve to halt and reverse land degradation.
- Suggest solutions – as to what needs to be done?



Conclusion:

Conclude with way forward.

Introduction:

- Desertification is **the degradation of land in arid, semi-arid and dry sub-humid areas. It is caused primarily by human activities and climatic variations.** Desertification does not refer to the expansion of existing deserts.
- It occurs because dryland ecosystems, which cover over one-third of the world's land area, are extremely vulnerable to **overexploitation and inappropriate land use. Poverty, political instability, deforestation, overgrazing and bad irrigation practices** can all undermine the productivity of the land

Body:

Main reasons that cause desertification in India are:

- **Water erosion (10.98 per cent).**
- **Wind erosion (5.55 per cent).**
- **Human-made/settlements (0.69 per cent).**
- **Vegetation degradation (8.91 per cent).**
- **Salinity (1.12 per cent).**
- **Others (2.07 per cent).**

United Nations Convention to Combat Desertification (UNCCD) was established in 1994, the sole legally binding international agreement linking environment and development to sustainable land management. The Convention addresses specifically the arid, semi-arid and dry sub-humid areas, known as the drylands, where some of the most vulnerable ecosystems and peoples can be found.

UNCCD Estimate of Desertification:

- **Land & Drought:**
 - By 2025, 1.8 billion people will experience absolute water scarcity, and 2/3 of the world will be living under water-stressed conditions.
 - A complex and slowly encroaching natural hazard with significant and pervasive socio-economic and environmental impacts to cause more deaths and displace more people than any other natural disaster.
 - India has witnessed increase in the level of desertification in 26 of 29 states between 2003-05 and 2011-13, according to the State of India's Environment (SoE) 2019 in Figures.
- **Land & Human Security:**
 - By 2045 some 135 million people may be displaced as a result of desertification.
 - Achieving land degradation neutrality -by rehabilitating already degraded land, scaling up sustainable land management and accelerating restoration initiatives- is a pathway to greater resilience and security for all.
- **Land & Climate:**
 - Restoring the soils of degraded ecosystems has the potential to store up to 3 billion tons of carbon annually.
 - The land use sector represents almost 25% of total global emissions. Its rehabilitation and sustainable management are critical to combating climate change.

Measures undertaken by UNCCD:

- **UNCCD 2018-2030 Strategic Framework:** It is the most comprehensive global commitment to achieve Land Degradation Neutrality (LDN) in order to restore the productivity of vast expanses of degraded land, improve the livelihoods of more than 1.3 billion people, and reduce the impacts of drought on vulnerable populations to build.
- The Convention's 197 parties work together to improve the living conditions for people in drylands, to maintain and restore land and soil productivity, and to mitigate the effects of drought.
- The UNCCD is particularly committed to a bottom-up approach, encouraging the participation of local people in combating desertification and land degradation.
- The UNCCD secretariat facilitates cooperation between developed and developing countries, particularly around knowledge and technology transfer for sustainable land management.
- As the dynamics of land, climate and biodiversity are intimately connected, to meet these complex challenges with an integrated approach and the best possible use of natural resources.
- The UNCCD collaborates closely with the other two Rio Conventions: The Convention on Biological Diversity (CBD) and The United Nations Framework Convention on Climate Change (UNFCCC).

**Way forward:**

- Setting up of an Intergovernmental Panel on Land and Soil will be very helpful in speeding up efforts to check desertification.
- Developing countries need to integrate their poverty eradication programmes with strategies to fight desertification.
- Lessons from the world:
 - In Africa, several countries have come together to form a 12,000 sq.km “great green wall” extending from Senegal to Djibouti with the participation of local communities.
 - People’s participation is crucial in reclaiming lands. China’s “great green wall” project is on a massive scale and is now starting to show results.
- The techniques include agro-forestry and farmer-managed natural regeneration. Small community initiatives like
 - Closure of degraded lands for grazing
 - Curtailing farming
 - Growing fast-growing plants
 - Raising tall trees that serve as a barrier against winds and sandstorms are very effective.
- National governments could consider building large green belts, prioritise forestry programmes and launch projects of fixing and stabilising sands.

Conclusion:

- The desertification is being accentuated by climate change. Thus, a comprehensive sustainable developmental approach is needed by the countries.

Q) Discuss the possible relationship between climate change and hunger. (250 words)Reference***Why this question:***

The question is to analyse the impact of climate change on global hunger

Key demand of the question:

One has to analyse how and why climate Change Is Driving Global Hunger.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:***Introduction:***

Begin with brief introduction on what you understand by Hunger.

Body:

Discussion should include the following:

- Quote reports like – Climate Change is among the leading causes of rising global hunger according to a new report released by the UN’s Food and Agricultural Organization (FAO).
- Extreme weather events, land degradation and desertification, water scarcity and rising sea levels all indicate how climate change already undermines global efforts to eradicate hunger.
- Explain how the two things are inter related, what are the dependencies? What needs to be done?

Conclusion:

Conclude that If we are to achieve a world without hunger and malnutrition in all its forms by 2030, it is imperative that we accelerate and scale up actions to strengthen the resilience and adaptive capacity of food systems and people’s livelihoods in response to climate variability and extremes.

Introduction:

- According to the United Nations’ annual food security report 2018, World hunger has risen for a third consecutive year. Climate Change is among the leading causes of rising global hunger. 60 million people are facing a food crisis but the public has not heard about it.
- The 2015/16 ‘super El Niño’, combined with climate change, brought severe droughts and flooding to people in the Horn of Africa, Southern Africa, Central America, Asia, the Caribbean and the Pacific. 31.1m people are currently food insecure in the Horn of Africa.

**Body:****Relationship between climate change and hunger:**

- Agriculture is one of the industries most exposed and vulnerable to climate change.
- Crops and livestock are extremely sensitive to temperature and precipitation.
- A late spring frost can be devastating, and a heat wave during the flowering stage can result in sharply reduced yields.
- With climate change, people face shortage of water and food, resulting in increased competition to access these basic necessities. This increases the chances of the intensification of existing conflicts and also creates new ones.
- In the Democratic Republic of Congo, shifts in the timing and patterns of rainfall have led to lower food production and greater competition on arable land, increasing ethnic tensions and conflicts in the country. Such conflicts affect the poor the most, and further lead to an increase in poverty and displacement, pushing people into a vicious trap.
- Frequent floods and droughts caused by climate change lead to food shortages and rise in food prices. This causes hunger and malnutrition, the effects of which are felt most strongly by the poor.
- Floods and droughts brought on by climate change threaten food production and supply. As a result, the price of food increases, and access becomes more and more limited, putting many at higher risk of hunger.
- Rising sea levels, extreme weather events and prolonged drought force millions of people to move away from home every year in search of food, water and jobs.
- Gradual changes brought on by deforestation, overgrazing and drought slowly transform pastures to dust, destroy crops and kill livestock, effectively challenging the livelihoods of millions of farmers
- Meat consumption alone accounts for an estimated 22 percent of global water use, and this need will increase in a hotter world.
- Even seemingly disparate factors like international trade are affected by climate change, with serious ramifications for food security

India's risk profile due to climate change:

- India ranks fifth globally for the losses it has experienced due to climate change
- Around 800 million people in the country live in villages and depend on agriculture and natural resources for their livelihoods. With at least 50% of the farmlands in the country being rain-fed, changes in the pattern of the monsoons will affect their livelihoods the most.
- There has been a recorded decline in monsoon rainfall levels since 1950. And it is suspected that 2°C rise in world's temperature will make India's monsoon even more unpredictable. Change in Monsoon could flood certain states in India, while some other states may witness frequent droughts.
- Climate change will make the existing problems of poverty, malnutrition, and farmer suicides worse.
- Due to climate change, 15% of India's groundwater resources are damaged, and falling water table is suspected to deal a severe blow in progress of agriculture.
- Rising sea-level and surges of storm would also impact agriculture, degrade groundwater quality, increasing the risk of contamination in water, and giving rise to diarrhoea and cholera.
- Also rising carbon dioxide levels due to global warming is suspected to shrink down the amount of protein in crops like rice and wheat, which are primary food source for majority of the population in the drought leaving populations at risk of malnutrition, low immunity and raising the risk of diseases affecting the population severely.
- There will be manifold increase in the severe heatwave frequency and affecting the crops, food delivery system etc.

Way forward:

- **Curbing food loss, improving nutrition and promoting sustainable production systems** must be prioritized.
- Food-producing nations will need creative policies and new technologies to meet these challenges successfully.
- The efforts should include reforestation which would reduce the impact of extreme events fuelled by warming of the surrounding oceans and neighbouring lands.
- To limit global warming, countries will have to **change policies in sectors like land, energy, industry, buildings, transport, and urban development.**
- **Limiting global warming to 1.5 degree** compared with 2 degree would reduce challenging impacts on ecosystems, human health and well-being, making it easier to achieve the United Nations Sustainable Development Goals.



- When historical knowledge no longer works, farmers must rely on other sources of information, such as **meteorologists, agronomists and other scientists**, as well as the **development of new sustainable technologies**.
- **Public funding for agricultural research and development** must be increased and the developed countries must transfer the technology to the developing and low-income nations.
- **Precision agriculture** can leverage computers, global positioning systems, geographic information systems and sensors to provide the data necessary to give each tiny parcel of land on a field exactly the inputs it needs.
- And a resurgent interest in the use of the time-honoured technology of **cover crops** may mitigate climate change impacts.
- **Nanotechnologies** can also help improve how fertilizers and pesticides are released. By putting chemical inputs into tiny capsules or in gels, it is possible to control when and how these inputs are released to make them more effective, and at the same time reduce chemical emissions and runoff.

Conclusion:

- In short, **agriculture is the “Goldilocks industry”** — the weather should not be too hot or too cold, and rainfall must be “just right.” Producing enough food for everyone in the world depends heavily on climate.
- This means that it will be impossible to curb hunger without preparing for and adapting to climate change.
- People must wield their social power to encourage mitigation of climate change and promote investments in technologies for adaptation. We need everyone at the table contributing to a food-secure future.

Q) The Indian Forest Act, 1927 (IFA), is proposed to be amended. Can we conclude that the forest sector in India is waking up to the much-needed reforms ? Critically analyse. (250 words)

[Livemint](#)

Why this question:

The question is to discuss the recent forest reforms that are being brought to the table. And evaluate if the reforms are in the right direction.

Key demand of the question:

Evaluate the current forestry reforms being taken by the government and critically analyse if they are able to meet the intent.

Directive:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

Begin with brief introduction on details of the Indian Forest Act.

Body:

Discussion should include the following:

Take cues from the article and discuss how IFA was a tool for a colonial takeover of India’s forests. The IFA created two main legal categories of forests—reserved forest (RF) and protected forest (PF)—and empowered the forest departments (FDs) to take over, manage and protect them. It was implicitly for timber and softwood production.

Then move on to discuss what are the issues of continuing the same system? What are we failing in?

Explain the relevance and coming of Forest Rights Act of 2006.

What are the current concerns associated to it?

Conclusion:

Conclude by reasserting the need for better reforms and need for the right direction.

Introduction:

- The Ministry of Environment, Forest and Climate Change (MoEF&CC) has finalized the first draft of the process of “comprehensively amending” the backbone of forest governance in India—the Indian Forest Act, 1927 (IFA).
- The Indian Forest Act was enacted in 1927 to ‘consolidate the law related to forest, the transit of forest produce, and the duty liable on timber and other forest produce’.

**Body:**

- There has been a severe decline in the forest cover of the country mainly because of large-scale diversion of forest lands for agriculture, diversion for “development” projects and regularisation of encroachments by state governments.

Many reports like the **MB Shah report of 2010** and the **TSR Subramanian report of 2015**, have talked about amending the IFA. Thus, the **IFA amendment Act is a new lease of life** with the **following new provisions**:

- New definitions of Forest and Community in line with changing environmental, socio-economic and political scenario.
- The amendment has increased the focus to conservation, enrichment and sustainable management of forest resources and matters connected therewith to safeguard ecological stability.
- It addresses the concerns related to climate change and international commitments.
- **More Power to forest officers** under Section 66(2) of the Indian Forest (Amendment) Act forest-officer, may if necessary, use firearms for securing of the forest-produce.
- The Union government has proposed that the Centre will be able to intervene in the states on matters of management of forestlands, overruling the states on several counts when it deems fit.
- The amendment introduces a new category of forests — production forest. These will be forests with specific objectives for production of timber, pulp, pulpwood, firewood, non-timber forest produce, medicinal plants or any forest species to increase production in the country for a specified period.
- It provides for empowering the state governments to levy cess upto 10% of value assessed of mining products removed from the forests and water used for irrigation or on industries. The cess shall be used exclusively for reforestation, forest protection and other purposes connected with the tree planting, forest development and conservation.
- The proposed amendments also stated that the state government “may recognise and notify private forest at the request of the owner” if the forest is used primarily for environmental conservation and preservation including, protecting water catchments
- It also defines the procedure to be followed for declaring an area to be a Reserved Forest, a Protected Forest or a Village Forest.
- It defines what a forest offence is, what are the acts prohibited inside a Reserved Forest, and penalties leviable on violation of the provisions of the Act.

However, there are a few concerns with the Draft IFA:

- **Clash with Forest Rights Act:** The exclusion of ‘village forestry’ from the preview of Forest Right Act (forest official supersedes gram sabha) is legally contradictory and would add confusion on the ground
- **Give more power to forest officials:** The draft Bill reinforces the idea of bureaucratic control of forests, providing immunity for actions such as use of firearms by personnel to prevent an offence. Critics argue that this would turn quarter of India’s land into police state.
- **Definition of forest:** Various national and international agencies such as FAO, CBD, UNFCCC and FSI have adopted the definition of forest that account density and area under tree as the basis of definition. While proposed amendment consider only administrative needs and ignores ecological parameters while defining forest.
- **Forced relocation of forest dwellers:** The draft mentions that the state governments could take away the rights of the forest dwellers if the government feels it is not in line with “conservation of the proposed reserved forest” by payment to the people impacted or by the grant of land

Conclusion:

- India’s forests play a key role in moderating the lives of not just the adivasis and other traditional dwellers, but everyone in the subcontinent, through their impact on the climate and monsoons.

Topic: Disaster and disaster management.

Q) What are heat waves and how are they classified ? Discuss the effects of heatwaves on health, environment and economy and suggest how should India be prepared ? (250 words)

[Indianexpress](https://www.indianexpress.com)

Why this question:

The Article discusses in what way heat-wave action plans can help city administrations cope with the worst of summer.



Key demand of the question:

The answer must explain what are heat waves, the causes of heatwaves, effect of heatwaves on health, environment and economy. Also one has to elaborate on the steps that are required to be taken in Indian context.

Directive word:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

Begin with a definition of what you understand by heatwaves.

Body:

The answer must discuss the following:

- Heat wave is considered if maximum temperature of a station reaches at least 40°C or more for Plains, 37°C or more for coastal stations and at least 30°C or more for Hilly regions.
- Discuss the criteria used to declare heat wave.
- Explain the causes and consequences, health impacts of Heat Waves, on economy, environment etc.
- Quote reasons – why India is experiencing more heat waves, what needs to be done?
- Conclude with way forward.

Conclusion:

Conclude with solutions to overcome the challenge.

Introduction:

- Heat wave is a period of abnormally high temperatures, more than the normal maximum temperature that occurs during the pre-monsoon (April to June) summer season.
- According to Indian Meteorological Department, Heat wave is considered if maximum temperature of a station reaches at least 40°C or more for Plains, 37°C or more for coastal stations and at least 30°C or more for Hilly regions.

Body:

Effects:

Social:

- Heatwaves are associated with increased rates of heat stress and heat stroke, worsening heart failure and acute kidney injury from dehydration.
- Children, the elderly and those with pre-existing morbidities are particularly vulnerable.
- Promote the spread of diseases like cholera and dengue fever across endemic areas.
- Increased poverty due to failure of crops and reduced economic activities.

Economic:

- India lost nearly 75 billion hours of labour in 2017 as a result of rising temperatures.
- This made sustained work increasingly difficult and negatively affecting workers' output.
- The agriculture sector experienced the largest increase in labour loss.
- Almost 153 billion hours of labour were lost globally in 2017 due to heat, an increase of 62 billion hours from the year 2000.
- Agriculture sector was more vulnerable compared to the industrial and service sectors because workers there were more likely to be exposed to heat.
- Since 1990, every region of the globe has become steadily more vulnerable to extreme increases of heat.

State actions towards Heat waves assessing their geographic variations:

- Key element of many states response strategy has been enhancing health risk communications on the impact of heat waves and how citizens can take simple steps to reduce their exposure and protect their health.
- **Andhra Pradesh:**
 - Andhra Pradesh has strong inter-agency coordination across multiple departments
 - Andhra Pradesh has also set up 1168 stations approximately one for every hundred square kilometers for weather forecasting and modelling.
 - It has developed a mobile app to disseminate information about heat waves and advice on precautionary steps; the app is available in English and Telugu.
- **Telangana:**
 - Telangana developed one of the first state-wide heat action plans in 2016.



- The state is now integrating the heat action plan with its action plan on climate change.
- The Telangana plan focuses on training district officials and health staff
- **Odisha:**
 - It has declared heat waves as a state specific disaster.
 - It is developing local thresholds and analyzing vulnerability of communities in different parts of the state.
 - Odisha's activities focus on awareness raising, capacity building and training of healthcare staff, interagency coordination, and enabling provision of water for vulnerable communities.
- Various states and municipalities have introduced early warning systems, public awareness campaigns and increased training for medical professionals.
- Ahmedabad, Nagpur and Odisha have made pioneering efforts with respect to heat-health warning systems (HHWS).
- **Ahmedabad Municipal Corporation (AMC)** has adopted a heat action plan which necessitates measures such as building heat shelters, ensuring availability of water and removing neonatal ICU from the top floor of hospitals.
- Such warning systems include providing weather forecasts in advance, issuing warnings to people, providing readiness of emergency response systems, and preparing doctors and health facilities to handle a sudden influx of patients. Warnings facilitate people in taking appropriate actions against heat-related harm.
- Access to cool environments remains the mainstay of preventing heat stress:
 - In rural areas, where electricity access is a challenge, supplementing power supply of primary health centres with solar-based systems should be undertaken. Chhattisgarh, Maharashtra and Tripura have already deployed such systems.

Way forward:

- In 2016, the National Disaster Management Agency prepared guidelines for state governments to formulate action plans for the prevention and management of heat waves, outlining four key strategies:
 - Forecasting heat waves and enabling an early warning system
 - Building capacity of healthcare professionals to deal with heat wave-related emergencies
 - Community outreach through various media
 - Inter-agency cooperation as well as engagement with other civil society organizations in the region.
- Scientific Approach:
 - Climate data from the last 15-20 years can be correlated with the mortality and morbidity data to prepare a heat stress index and city-specific threshold.
 - Vulnerable areas and population could be identified by using GIS and satellite imagery for targeted actions.
- Advance implementation of **local Heat Action Plans**, plus effective inter-agency coordination is a vital response which the government can deploy in order to protect vulnerable groups.
- This will require identification of "**heat hot spots**", analysis of meteorological data and allocation of resources to crisis-prone areas.
- The **India Cooling Action Plan** must emphasize the urgency and need for better planning, zoning and building regulations to prevent Urban Heat Islands.
- **Provision of public messaging** (radio, TV), mobile phone-based text messages, automated phone calls and alerts.
- Promotion of traditional adaptation practices, such as staying indoors and wearing comfortable clothes.
- Popularisation of simple design features such as shaded windows, underground water storage tanks and insulating housing materials.

Q) "Fixing India's water crisis will need saner policies, meticulous strategy and a massive amount of public participation". Critically analyse. (250 words)

[Livemint](https://www.livemint.com)

Why this question:

The article discusses in detail the water woes that are unraveling in many parts of the country.

Key demand of the question:

The answer must address the methods and ways in terms of policies that are must required for addressing the water crisis across the country. One must discuss the need for systematic solutions.

**Directive:**

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:**Introduction:**

Begin with brief introduction on the current water crisis situation of the country.

Body:

- One must quote facts to depict the current water crisis situation facing the country. Studies warn that a seasonal drought is, in fact, a full-blown water crisis, accentuated by poor planning. Groundwater and sand extraction from river beds and basins has turned unsustainable, say many government and independent studies.
- Discuss the causative factors of such drought like conditions.
- What needs to be done at the planning and policy level?
- Take hints from the article, suggest solutions using case studies.

Conclusion:

Conclude with way forward.

Introduction:

- The **NITI Aayog report on Composite Water Management Index (CWMI)** said that India is facing its ‘worst’ water crisis in history. Taps in Shimla went dry in summer of 2018, posing an unprecedented water crisis in the hill town.
- Maharashtra and nearly half the country is facing drought and crippling water scarcity. Rains in 2018 in many parts were below normal with long gaps between rainy days. Our water crisis is turning more structural and stems from mostly man-made factors.

Body:**Current water crisis in India:**

- The annual per capita availability of water continues to decline sharply from about 5,177 cubic metres in 1951 to about 1,720 cubic metres in 2019.
- The NITI Aayog in its report on Composite Water Management Index (2018) has underlined that currently 600 million people face high to extreme water stress.
- Twenty-one cities, including Delhi, Bengaluru, Chennai and Hyderabad will run out of groundwater by 2020, affecting 100 million people.
- The rate of groundwater extraction is so severe that NASA’s findings suggest that India’s water table is declining alarmingly at a rate of about 0.3 metres per year.
- At this rate of depletion, India will have only 22 per cent of the present daily per capita water available in 2050, possibly forcing the country to import water.
- Dug-wells and borewells are constructed with alarming impunity to slide deeper and deeper to suck water from greater depths.
- Water is being diverted from food-crops to cash-crops; livelihoods to lifestyles; rural to urban—mismanagement is a bigger reason for the drought.
- Water shortages are hurting India’s ability to produce power and 40% thermal power plants are in areas facing high water stress, a recent World Resources Institute report says.
- Not only farmers, urban dwellers in cities and towns across India are also staring at a never seen before drinking water scarcity
- Residents in the arid Thar Desert of Rajasthan are spending Rs 2,500 to buy 2,500 litres of water which they share with their cattle.

Causative factors for water crisis:

- A combination of population explosion, unplanned growth of the city and its expansion to some traditional catchment areas (a region from which rainfall flows into a river, lake, or reservoir) have led to a reduction in the natural flow of water, and large-scale deforestation.
- Climate change, leading to much lower precipitation during the winter months. As a result, the natural flow and recharge of water in the region has fallen sharply
- Failure of State governments to check unplanned development and exploitation of water resources. There is no attempt at the central or state levels to manage water quantity and quality



- The vegetation pattern has changed, tree cover is shrinking and unscientific dumping of debris in water streams is rampant.
- The debris blocks the natural course of water bodies.
- Increasing number of tube wells resulting in depletion of groundwater.
- Changes in farming patterns lead to consumption of more water for irrigation and also change the soil profile because of the use of fertilizers
- The states ranked lowest like Uttar Pradesh, Haryana and Jharkhand – are home to almost half of India's population along with the majority of its agricultural produce.
- There is also a **lack of interest in maintaining India's traditional water harvesting structures**.

Measures needed to strengthen water Governance:

- India's priority must be:
 - To make our irrigation and water systems amenable to modern concepts.
 - To complete irrigation and water sector reforms.
 - To implement improved water management, governance and regulation practices.
 - Pricing system for water: For making people use water efficiently
- Deepen our understanding of our water resources and usage and put in place interventions that make our water use efficient and sustainable.
- Augmentation of watersheds that can store more good water, for use in agriculture and to serve habitations.
- Strict pollution control enforcement.
- **Decentralisation of irrigation commands**, offering higher financial flows to well-performing States through a **National Irrigation Management Fund**.
- Groundwater extraction patterns need to be better understood through **robust data collection**.
- Pollution can be curbed by levying suitable costs.
- Poor maintenance of pipelines, consistent leakage and illegal tapping of water are some of the issues that need to be addressed on a war-footing.
- Adopting rainwater harvesting techniques is the need of the hour.
- A legal mandate will work better than just competition and cooperation; it would make governments accountable.
- These forward-looking changes would need revamped national and State institutions, and updated laws.
- Urban India needs to focus on recycling and harvesting water, having better testing and purification facilities and increase public awareness on the need to conserve water.
- Large catchment areas need to be developed around water bodies so that natural recharge of groundwater takes place. A good example is the **Seog catchment area** which has been denoted as a wildlife sanctuary and where no construction is allowed.
- Greywater recycling, a method of recycling wastewater from kitchen sinks, showers and laundry fixtures.
- Greywater recycling helps reduce household water usage by about 50% .
- Comprehensive restructuring of India's Central Ground Water Board and the Central Water Commission in order to create a new 21st Century management authority.
- Right to water should mean a high priority to drinking water.
- This year's World Water Development Report makes it clear that nature-based solutions which are also aligned with the principles and aims of the 2030 Agenda for Sustainable Development can offer answers to our most pressing water-related challenges.

Conclusion:

- There is a need for credible environmental and cumulative impact assessments, genuine public consultation process at multiple stages of planning and project implementation, confidence-inspiring appraisal, which includes the appointment of independent experts, and most crucially, achieving some real monitoring and compliance.
- The **water governance** ought to be made **transparent, accountable and participatory** in every sub-sector, including management of rivers, groundwater, floods, and biodiversity, among others.



Q) Maharashtra is facing a water emergency of unprecedented proportions, in such conditions analyse how grave the water crisis is and what needs to be done to deal with the problem. (250 words)

Reference

Why this question:

The conversation in the show discusses in detail the water emergency that the State of Maharashtra is facing and highlights the urgency to look into the water crisis the country is witnessing.

Key demand of the question:

The answer must discuss the water crisis in detail and suggest what needs to be done to resolve the situation and address the issue in a sustainable manner.

Directive:

Analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary

Structure of the answer:

Introduction:

In a few introductory lines discuss the situation of water crisis currently being witnessed across the country.

Body:

In brief discuss the following aspects –

Following years of drought, the rivers' currents have ebbed, water in dams and reservoirs has depleted and over-exploitation of groundwater has raised concerns over the long-term availability of water.

Meanwhile media reports claim IT companies in Chennai are asking employees to work from home. The reason being they don't have water to sustain operations. It has not rained for almost 200 days in the city and Chennai may not get sufficient rain to tide over the water crisis for the next three months. In North India, residents in the arid Thar Desert of Rajasthan are dishing out Rs 2,500 to buy 2,500 litres of water which they share with their cattle.

With the threat of desertification staring Punjab in the face and the state struggling to break away from the 'wheat-paddy' cycle, farmers in the state are quickly adopting a five-decade-old scheme to use 'Underground Pipeline System' for irrigation.

The union government on its part has created a Jal Shakti Ministry under a full-fledged cabinet minister to try and address the water emergency, but a lot more needs to be done.

Thus conclude by analysing how grave the water crisis is and what needs to be done to deal with the problem.

Conclusion:

Conclude with what more needs to be done.

Introduction:

- Maharashtra is facing a water emergency of unprecedented proportions. Following years of drought, the rivers' currents have ebbed, water in dams and reservoirs has depleted and over-exploitation of groundwater has raised concerns over the long-term availability of water. Our water crisis is turning more structural and stems from mostly man-made factors.

Body:

- India receives 4000 bcm rainfall every year. Out of this, 1869 bcm is left after evaporation and the actual availability is 1137 bcm. There is a lot of temporal and spatial variation in the availability of this water. There are water surplus states and water scarce states like Maharashtra (Vidarbha, Beed), Karnataka, Tamil Nadu, Rajasthan, parts of Gujarat, Punjab and Haryana.

Issues with long term projects:

- Interlinking of rivers is a long-term project. It is almost 20 years now and the groundwork has not started for Ken-Betwa project. There is a lot of political opposition and there are ecological concerns as well. Half of the Panna tiger Reserve will be submerged.
- There are floods in Brahmaputra river at the time of monsoon but water is required in Assam during dry months.
- There is the problem of storage and transfer of water as well.

Major issues:

- Delay in monsoon and change in pattern.
- Management of both supply side and demand side of water.



- India's availability of water at present is 1700 cubic ft per person, which was 5000 cubic ft per person once upon a time.
- Unprecedented heat waves, which can become more persistent with climate change.
- Less pre monsoon rain.
- Reservoir levels are going down.
- 91 reservoirs in India are at 19% of their life storage.

Measures needed:

- India's priority must be:
 - To make our irrigation and water systems amenable to modern concepts.
 - To complete irrigation and water sector reforms.
 - To implement improved water management, governance and regulation practices.
 - Pricing system for water: For making people use water efficiently
- Centre, states, people and all stakeholders need to take action in this regard.
- Vigorous programmes on water efficiency are required like energy efficiency.
- There is an urgent need for coordination among users for aquifers. There should be laws and contracts for sharing of aquifers.
- Groundwater mapping has started recently in India.
- There should be a River Basin Authority for sharing information among states as most of the rivers in India pass through different states focusing on conservation.
- At the village level, there can be decentralized management of water at community level.
- Charging money for efficient use of water (as in case of electricity). For example- Water ATMS at Marathwada provide water @25 paisa per litre a day.
- Changing the cropping pattern, crop diversification and encouraging water use efficiency in agriculture by moving towards food crops from cash crops.
- Coordinated efforts among states for management of ground water at a localized level.
- Encouraging rain water harvesting, check dams
- Comprehensive restructuring of India's Central Ground Water Board and the Central Water Commission in order to create a new 21st Century management authority.
- Right to water should mean a high priority to drinking water
- India has so far seen the water sector in terms of irrigation projects or water schemes. We need to balance between our water-needs and that of the river itself.

Conclusion:

- Fixing India's structural water crisis will need a balanced combination of saner policies, meticulous strategy, and a massive amount of public participation.

Q) India faces a water crisis acute enough to cause popular unrest as it slowly assumes calamitous proportions. Discuss the causes that have led to such conditions and what needs to be done to address the situation on ground? (250 words)

[Livemint](#)

Why this question:

The article captures the water crisis currently that is prevailing in India. It points to the alarming crisis that may soon become a catastrophe.

Demand of the question:

The answer must discuss the underlying causes for such a crisis and analyse as to what needs to be done.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction

Start with few facts explaining the water crisis situation in the country. India has only 4% of the planet's fresh-water for 16% of its population.

Body

One can have the following points in the answer:



Explain the crisis situation first, draw a map of India to depict the water crisis situation across the country.

Explain the root cause of such situation – falling Groundwater levels, India is the world's biggest groundwater extractor, All manner of structures have encroached upon lakes and rivers with impunity, while industrial waste and sewage inflows render various water bodies toxic. The problem is compounded by the large-scale adoption of thermocol and plastic plates and glasses even in the countryside, the stuff of non-biodegradable waste that ends up killing rural pools of water that have traditionally served entire villages etc.

Discuss what needs to be done to prevent the situation turning into a popular catastrophe.

Conclusion

Conclude with suggesting solutions, increased water harvesting techniques, scientific interventions for conservation of water is the need of the hour.

Introduction:

- The **NITI Aayog report on Composite Water Management Index (CWMI)** said that India is facing its 'worst' water crisis in history. Taps in Shimla went dry in summer of 2018, posing an unprecedented water crisis in the hill town.
- According to a forecast by the Asian Development Bank, India will have a water deficit of 50% by 2030. Recent studies also ranked Chennai and Delhi at the top of the 27 most vulnerable Asian cities in terms of low per-day water availability Mumbai and Kolkata follow close.

Body:

Current water crisis in India:

- India has only 4% of the planet's fresh-water for 16% of its population.
- The annual per capita availability of water continues to decline sharply from about 5,177 cubic metres in 1951 to about 1,720 cubic metres in 2019.
- The NITI Aayog in its report on Composite Water Management Index (2018) has underlined that currently 600 million people face high to extreme water stress.
- Twenty-one cities, including Delhi, Bengaluru, Chennai and Hyderabad will run out of groundwater by 2020, affecting 100 million people.
- The rate of groundwater extraction is so severe that NASA's findings suggest that India's water table is declining alarmingly at a rate of about 0.3 metres per year.
- At this rate of depletion, India will have only 22 per cent of the present daily per capita water available in 2050, possibly forcing the country to import water.

Causative factors for water crisis:

- A combination of population explosion, unplanned growth of the city and its expansion to some traditional catchment areas (a region from which rainfall flows into a river, lake, or reservoir) have led to a reduction in the natural flow of water, and large-scale deforestation.
- Climate change, leading to much lower precipitation during the winter months. As a result, the natural flow and recharge of water in the region has fallen sharply
- Failure of State governments to check unplanned development and exploitation of water resources. There is no attempt at the central or state levels to manage water quantity and quality
- The vegetation pattern has changed, tree cover is shrinking and unscientific dumping of debris in water streams is rampant.
- The debris blocks the natural course of water bodies.
- Increasing number of tube wells resulting in depletion of groundwater.
- Changes in farming patterns lead to consumption of more water for irrigation and also change the soil profile because of the use of fertilizers
- The states ranked lowest like Uttar Pradesh, Haryana and Jharkhand – are home to almost half of India's population along with the majority of its agricultural produce.
- There is also a **lack of interest in maintaining India's traditional water harvesting structures.**

Measures needed:

- India's priority must be:
 - To make our irrigation and water systems amenable to modern concepts.
 - To complete irrigation and water sector reforms.
 - To implement improved water management, governance and regulation practices.
 - Pricing system for water: For making people use water efficiently



- Deepen our understanding of our water resources and usage and put in place interventions that make our water use efficient and sustainable.
- Augmentation of watersheds that can store more good water, for use in agriculture and to serve habitations.
- Strict pollution control enforcement.
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Conclusion:

- There is a need for credible environmental and cumulative impact assessments, genuine public consultation process at multiple stages of planning and project implementation, confidence-inspiring appraisal, which includes the appointment of independent experts, and most crucially, achieving some real monitoring and compliance.
- The **water governance** ought to be made **transparent, accountable and participatory** in every sub-sector, including management of rivers, groundwater, floods, and biodiversity, among others.

Topic: Money laundering

Q) How does globalization impact money laundering ? Examine the recent policy efforts by the Government of India to address such problems. (250 words)

Reference

Why this question:

The question is to analyse the impact of globalisation on money laundering.

Demand of the question:

The answer must discuss the impact of globalization on money laundering.

Directive word:

Examine – When asked to 'Examine', we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction

Start with brief description of the question's context.

Body

One can have the following points in the answer:

- Start the answer by drawing the link between money laundering and globalization.
- Briefly explain how globalization impacts money laundering.
- Examine the recent policy efforts taken by the government.

Conclusion

Conclude with way forward.

**Introduction:**

- Money laundering is a process where the proceeds of crime are transformed into apparently legitimate money or other assets. It is the processing of criminal proceeds to disguise its illegal origin. In simple words, it can be defined as the act of making money that comes from one source to look like it comes from another source. Money laundering is a single process however, its cycle can be broken down into three distinct stages namely, placement stage, layering stage and integration stage.

Body:**Impacts of globalization on money laundering:**

- Rapid developments in financial information, technology and communication allow money to move anywhere in the world with speed and ease.
- This makes the task of combating money-laundering more urgent than ever.
- The deeper “dirty money” gets into the international banking system, the more difficult it is to identify its origin.
- Because of the clandestine nature of money-laundering, it is difficult to estimate the total amount of money that goes through the laundry cycle.
- There have been a number of developments in the international financial system during recent decades that have made the three F’s-finding, freezing and forfeiting of criminally derived income and assets-all the more difficult.
- These are the “dollarization” (i.e. the use of the United States dollar in transactions) of black markets, the general trend towards financial deregulation, the progress of the Euromarket and the proliferation of financial secrecy havens.
- Fuelled by advances in technology and communications, the financial infrastructure has developed into a perpetually operating global system in which “megabyte money” (i.e. money in the form of symbols on computer screens) can move anywhere in the world with speed and ease.

Efforts of Government of India to address money laundering:

- In India, before the enactment of Prevention of Money Laundering Act, 2002 (PMLA) the major statutes that incorporated measures to address the problem of money laundering were:

PMLA Act:

- It prescribes obligation of banking companies, financial institutions and intermediaries for verification and maintenance of records of the identity of all its clients and also of all transactions and for furnishing information of such transactions in prescribed form to the Financial Intelligence Unit-India (FIU-IND).
- It empowers the Director of FIU-IND to impose fine on banking company, financial institution or intermediary if they or any of its officers fails to comply with the provisions of the Act as indicated above.
- PMLA envisages setting up of an Adjudicating Authority to exercise jurisdiction, power and authority conferred by it essentially to confirm attachment or order confiscation of attached properties.

The Black money (undisclosed foreign income and assets) and Imposition of Tax Act, 2015:

- To deal with the menace of the black money existing in the form of undisclosed foreign income and assets by setting out the procedure for dealing with such income and assets.

Benami Transactions (Prohibition) Amendment Bill, 2015:

- It aims to expand the definition of Benami Transactions and specifies the penalty to be imposed on a person entering into a Benami transaction.

Institutional framework:**Enforcement directorate:**

- PMLA empowers certain officers of the Directorate of Enforcement to carry out investigations in cases involving offence of money laundering and also to attach the property involved in money laundering.

Financial Intelligence Unit:

- It was established in India in 2004 as the central national agency responsible for receiving, processing, analyzing and disseminating information relating to suspect financial transactions.
- FIU-IND is also responsible for coordinating and strengthening efforts of national and international intelligence, investigation and enforcement agencies in pursuing the global efforts against money laundering and related crimes.
- FIU-IND is an independent body reporting directly to the Economic Intelligence Council (EIC) headed by the Finance Minister.

**Way forward:**

- Make common people more aware about the problem- The poor and illiterate people, instead of going through lengthy paper work transactions in Banks, prefer the Hawala system which needs to be stopped.
- Fulfilling the purpose of KYC Norms by doing proper KYC.
- Establishment of comprehensive enforcement agencies
- Promote cashless digital transaction

Topic : Cyber security; Role of media and social networking sites in internal security challenges.

Q) Historically, privacy was almost implicit, because it was hard to find and gather information. But in the digital world, we need to have more explicit rules. Discuss the need to control social media and the associated challenges. (250 words)

Livemint

Why this question:

The article discusses the recent US government's decision to press ahead with an antitrust probe against Big Tech firms has drawn the clout of these companies into the spotlight again. Investigators will put Facebook, Amazon, Apple and Google to scrutiny in an effort to check if they have abused their market dominance to stifle competition and hurt consumers.

Key demand of the question:

The answer must evaluate the need for controlling social media and the methods to ensure privacy concerns are addressed. One must explain how things have evolved historically with coming of the social media.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:**Introduction:**

In a few introductory lines highlight the role of social media, the context of security involved along with it.

Body:

In brief discuss –

- Discuss how Social media is omnipresent in our lives and has a huge bearing on society and individuals.
- Explain that about 1.49 billion people on average log onto Facebook daily; every second, on average, around 6,000 tweets are tweeted on Twitter; and since its inception, over 40 billion photographs have been posted on Instagram. This is evidence of the huge presence of social media in our lives.
- Discuss the need for putting a control on the social media, why is it necessary and urgent.
- Explain what are the challenges involved , how to overcome them.

Conclusion:

Conclude with what needs to be done, suggest way forward.

Introduction:

- Social media plays an integral role in our lives today and has a huge bearing on society and individuals. Social media has revolutionized the way people communicate and socialize on the web. There is a positive effect on business, politics, socialization as well as some negative effects such as cyber-bullying, privacy, and fake news.

Body:

Recent developments:

- The US government's decision to press ahead with an antitrust probe against Big Tech firms has drawn the clout of these companies into the spotlight again.
- Investigators will put Facebook, Amazon, Apple and Google to scrutiny in an effort to check if they have abused their market dominance to stifle competition and hurt consumers.
- If such behaviour is proven, it would be unsettling, to say the least, given the widening use of social media and the privacy concerns it has thrown up.

**Need to control social media due to rising privacy concerns:**

- **Legitimate vs fake information:**
 - Challenge is how you permit what is considered legitimate content and information, and at the same time disallow the plethora of fake information as well as threats and abuse conveyed through these platforms.
 - There are questions raised whether to ban the medium or platform or content.
 - Rumours triggering lynchings and riots, data snooping etc.
- **Data theft and identity crisis:**
 - Data of millions are taken and used when only 270,000 people knowingly or unknowingly gave consent.
 - Individuals often share their data without being aware of it or understanding the implications of privacy terms and conditions.
 - Individuals do not have much control over the data they shared and personal data is considered as the new oil.
 - Individual users are increasingly viewed as legitimate targets for mining personal and metadata.
 - Such data can provide an intimate psychological profile including ideological preferences that together help campaign managers target communications and forecast voter behaviour.
- **Personal information collected:**
 - Fundamental business model of social media companies like Facebook poses some serious concerns.
 - Their goal is to collect as much personal information on individuals as possible and then use this information to sell highly targeted advertising to companies.
 - Worldwide there is very little understanding of what exactly they collected, little regulation and little known about the consequences on democracy.
 - This level of data collection represents the concentration of enormous power in the hands of a single corporation. The Cambridge Analytica scandal has highlighted how this power can be used by a small group of people with an agenda to foster polarisation, radicalisation and undermine democratic elections.
- **Other privacy issues:**
 - The tax authorities, for instance, have an eye out for lifestyles that may be disproportionate to declared sources of income.
 - Earlier this week, the US began asking visa applicants to submit details of their social media accounts.
 - The trolling of women has brought to the fore the disturbing reality of online violence and abuse women face in India.
 - Social media psychological profiles are being generated by tools designed to aid recruitment. Official scans by state agencies are on the rise, too.
- **Currently very difficult to control because:**
 - The number of users using social media platforms and internet are ever increasing and volume of traffic is huge.
 - The monopolistic tendency of a social media platform is all the more pronounced for the simple reason that its utility depends on connectivity: People have virtually no choice but to use the network that links everybody else they'd like to interact with.

Measures needed:

- Companies claim that they are merely distributing information. But the fact that they are near-monopoly distributors makes them public utilities and should subject them to more stringent regulation, aimed at preserving competition, innovation, and fair and open access.
- Recent laws directed at social media have that changing in Germany, social networks could pay up to \$60 million in fines if hate speech isn't removed within 24 hours.
- Social networks need to enhance their own governance, continue to refine the algorithms, use more "friction" like warnings and notifications for suspicious content expand human oversight, adjust advertising, and continue to share knowledge with other networks to reach those goals.
- India needs to have a legal framework for data protection. It will create a vital and necessary framework against which rights and responsibilities can be articulated, and digressions thereof evaluated.
- A proper data protection law with an effective enforcement mechanism would ensure recognition for India as a trustworthy global destination for data-based businesses and privacy-conscious consumers while also protecting the Right to Privacy of the people in India.



- Cyber law provisions need to be revised as the current approach of the Indian law is very narrow.
- International agreements form an important node in a web of solutions needed to address security and the rule of law in cyberspace. Given India's vision of a Digital India and considering the surge in cybercrime, it would be beneficial for India to join Budapest Convention
- Experts have pointed to the importance of aspects such as following basic cyber hygiene and a periodic review of the security facets of one's profile on various web platforms, especially on social media, where users tend to share personal information.
- When there are no legitimate security or public interest reasons, users should have the right to have their data destroyed.

Conclusion:

- Social media is a tool for empowerment, especially for a country like India where 70% of the population is yet to get online and leverage the opportunities it has to offer.
- While social media is definitely facing the privacy challenges, it is also enabling communities to access their rights and voice their opinion. Thus, there is a need to regulate it to get the best out of it for socio-economic development of society.

Q) Do you think the Indian government's intent towards data protection lie in favour data localisation? Critically analyse. (250 words)

[Indianexpress](#)

Why this question:

The article discusses why the Indian government intends in favor of data localization.

Key demand of the question:

One has to discuss the concept of data localization; Why government wants this? Concerns expressed by stakeholders and possible solutions.

Directive:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

Begin with the concept of data localisation.

Body:

Explain the following points:

- What is the issue associated?
- What does data localization mean? – is a sensitive issue the world over and more so in India, given that this is a country of 1.3 billion people with over 1 billion mobile users. With technology developing rapidly, more and more devices becoming smarter and the Internet of Things taking over, a genuine concern around leakage of private data has gained ground.
- Explain why data localization is necessary for India? What are the policies that imply data localization?
- Discuss the concerns and challenges.

Conclusion:

Conclude with the fact that there is an urgent need to have an integrated, long-term strategy for policy creation for data localization.

Introduction:

- Data localisation refers to the process of storing data within the borders of a particular country where the data was generated.
- India's recent drafts and statements have strong signals for data localisation, which means that data of Indians, even if collected by an American company, must be stored and processed in India.
- Worldwide, the data flow debate is playing out at the World Trade Organisation (WTO) and G20.

**Body:****Importance of Data localization for India:**

- For securing citizen's data, data privacy, data sovereignty, national security, and economic development of the country.
- Much of the data from online sales, on ecommerce platforms is likely to be hosted and stored in US data firms.
- The extensive data collection by technology companies, has allowed them to process and monetise Indian users' data outside the country.
- To curtail the perils of unregulated and arbitrary use of personal data
- With the advent of cloud computing, Indian users' data is outside the country's boundaries, leading to a conflict of jurisdiction in case of any dispute.
- Data is a digital transactions footprint. During war or hostilities, data centres could be switched off. Such scenarios are pushing countries towards local infrastructure.

Yes, Data localization is needed in India due to:

- Data localisation will help Indian law enforcement agencies access data.
- RBI circular says that, it is important to have unfettered supervisory access to data stored in India.
- Localisation will help law enforcement access the data. Currently, India has to use "mutual legal assistance treaties" (MLAT) with the US to get the data of Indians that are controlled by American companies.
- By requiring a copy of the data to be stored in India (data mirroring), the government hopes to have more direct control over these companies, including the option to levy more taxes on them
- Recently lynching across the country were linked to WhatsApp rumours and in this context, localisation of data assumes significance.
- It gives security against foreign attacks and surveillance.
- Domestic companies support data localisation citing examples of China and Russia.
- Data is the new oil, data is strategic and foreign entities could cripple India in event of war or sanctions.
- India's data localisation push can give rise to new business opportunity.
- India is an ideal location for lower cost of operations and availability of quality talent.
- National wealth creation relies on in-house data storage.
- It champions domestic innovation.
- Massive amounts of data generated by cities can be used to improve infrastructure and transport systems as Singapore has done.

No, data localization is not needed due to:

- It will create domino effect of protectionist policy and other countries may also follow it. This leads to fragmentation of internet.
- It may affect India's young start-ups that are attempting global growth.
- It may affect big firms like TCS and Wipro because they are processing foreign data in India.
- Even if the data is stored in the country, encryption keys may remain out of reach of national agencies.
- It can act as "barriers" to expansion of services in India, impacting not only consumers but also growth of Indian payments market.
- Infrastructure in India for efficient data collection and management is lacking
- Others caution that these laws could bring increased state surveillance, like India's draft intermediary rules that would require WhatsApp to change its design to proactively filter messages.

Way forward:

- There is an urgent need to have an integrated, long-term strategy for policy creation for data localisation.
- Devising an optimal regulatory and legislative framework for data processors and data centres operating in the country.
- Adequate infrastructure in terms of energy, real estate, and internet connectivity also needs to be made available for India to become a global hub for data centres.
- Adequate attention needs to be given to the interests of India's Information Technology Enabled Services (ITeS) and Business Process Outsourcing (BPO) industries, which are thriving on cross border data flow
- Data needs to be shared with start-ups so that they can have a level playing field in offering innovative services with large and often global data companies.



Topic: Security challenges and their management in border areas - linkages of organized crime with terrorism.

Q) The geo-strategic importance of the Indian Ocean Region (IOR) has seen a gradual increase in the recent past. Under such conditions discuss the significance of Indian Navy's Presence and Surveillance Missions in the region and critical role played by them. (250 words)

The hindu

Why this question:

Question is about discussing the crucial role played by the Indian Navy in the Indian ocean region. Recently in an expansion of its Mission Based Deployments (MBD) in the Indian Ocean Region (IOR), the Navy deployed its P-8I long-range maritime surveillance aircraft for anti-piracy sorties from Salalah in Oman to patrol the Gulf of Aden.

Key demand of the question:

The answer must provide for a detailed narration of the geostrategic importance that the Indian ocean region holds for India and the countries around the region. One has to explain in detail the

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer

Introduction:

write a few introductory lines the current efforts being made by the Indian Navy in the IOR.

Body:

Have the following points in the answer:

- The geo-strategic importance of the Indian Ocean Region (IOR) has seen a gradual increase in the recent past. Indian Navy regularly deploys ships for Presence and Surveillance Missions (PSM), off critical choke points / sea lanes in the IOR.
- Since August 2017, Indian Navy deployments in the IOR have been further structured under the Mission Based Deployment (MBD) concept.
- Under MBD concept, In addition to the anti-piracy deployment, IN ships were also Mission Deployed for :
 1. Operation 'GULFDEP' in the Persian Gulf,
 2. Operation 'CENTDEP' in the central Indian Ocean Region,
 3. Operation 'NORDEP' in the northern Bay of Bengal and
 4. Operation 'MALDEP' in the Andaman Sea and approaches to the Malacca Strait.

Discuss other Naval operations that were significant in the IOR.

Conclusion –

Conclude with significance.

Introduction:

- The Indian Navy recently deployed its P8I surveillance planes for carrying out anti-piracy patrol sorties from Salalah (in Oman) to patrol the Gulf of Aden and other piracy prone areas. The deployment is an expansion of Navy's Mission Based Deployments (MBD) in the Indian Ocean Region (IOR), to keep the region safe.

Body:

Geo-strategic importance of the Indian Ocean Region (IOR):

- Indian Ocean has gained tremendous importance over the years and has now become the most concerted area where global economic activity conjoined political interests.
- The combination of economic growth and slowdown, military expansion, increasing demand for natural resources, demographics combined with the geo-political situation, increased presence of nuclear capable actors and variances in regional structures of governance, highlights the geo-political significance of this area.
- It is a home to world's busiest waterways and chokepoints such as the Suez Canal, Bab al Mandeb, Strait of Hormuz and the Strait of Malacca. All these chokepoints and waterways are highly important for the rising nations of the world.
- More than half the world's armed conflicts are presently located in the Indian Ocean region.



- It is also home to
 - Continually evolving strategic developments including the competing rises of China and India
 - Potential nuclear confrontation between India and Pakistan
 - The US interventions in Iraq and Afghanistan
 - Islamist terrorism
 - Growing incidence of piracy in and around the Horn of Africa
- There has been a gradual to an accelerated expansion of maritime forces and their capabilities in the region.
- The growing presence of **extra regional powers and nuclear capable nations** has further altered the existing security framework. This is affecting the existing military balance and the impending imbalance could create a new architecture that could affect the prevailing security scenario.
- **Naval bases:**
 - US uses the island of Diego Garcia as a major air-naval base and logistics hub for its Indian Ocean operations.
 - France, meanwhile maintains significant presence in the north and southwest Indian Ocean quadrants, with naval bases in Djibouti, Reunion, and Abu Dhabi.
- **India:**
 - India imports about 70 percent of its oil through the Indian Ocean Region to its various ports. As a consequence, it has been enhancing its strategic influence through the use of soft power, by becoming a major foreign investor in regional mining, oil, gas, and infrastructure projects.
 - In addition, India has aggressively expanded its naval presence reportedly to include the establishment of listening posts in the Seychelles, Madagascar and Mauritius
- Its governance and security are under constant threat of being undermined, whether by non-state actors such as pirates, smugglers, and terrorists, or by furtive naval competition between states.

Mission-Based Deployments (MBD) philosophy was adopted by Navy in August 2017. This ensures availability of warships in 7-8 critical areas of the Indian Ocean Region on a nearly continuous basis to provide rapid response to any contingency. Under the MBD concept, the Navy now maintains a ship at every choke point in the IOR at any point of time.

The reasons behind the deployment of warships are:

- The continued prevalence of piracy
- Illegal fishing
- Arms smuggling and other such nefarious activities directly impinge on the maritime security of India in particular and the region at large.
- Natural disasters also ravage the region frequently.
- Increase in the presence of 'Extra-Regional Forces'.

Some of the missions:

- Operation 'GULFDEP' in the Persian Gulf,
- Operation 'CENTDEP' in the central Indian Ocean Region,
- Operation 'NORDEP' in the northern Bay of Bengal and
- Operation 'MALDEP' in the Andaman Sea and approaches to the Malacca Strait.

As part of expanding engagement maritime engagement, India has taken the following steps:

- India has stepped up its cooperation with Indian Ocean littoral states and maritime neighbours, as part of expanding its maritime engagement.
- Under the 'Neighbourhood First' policy, the Navy undertakes Joint Exclusive Economic Zone (EEZ) surveillance with Maldives, Seychelles and Mauritius and Coordinated Patrols (CORPAT) with Bangladesh, Myanmar, Thailand and Indonesia.
- Search and rescue and capability-enhancement activities have also emerged as major areas.
- Besides escorting Indian flagged vessels, ships of other countries have also been provided protection

Conclusion:

- Indian Ocean is an "**ocean of economic opportunities**". The growing interests of major powers (US, UK, Russia, France and Japan) in the region, and the many Chinese infrastructure projects in the region create an imperative for India to actively limit the military maritime activity of external powers in the region.
- India should use the multilateral route to create a consensus for peaceful and sustainable use of the Indian Ocean and its resources.



Q) Discuss the need for Defense reforms in India. In what way do you think the coming of Minister for security in the Cabinet going to prove to be a gamechanger ? (250 words)

[Indianexpress](https://www.indianexpress.com)

Why this question:

The article discusses about forging national security, what way Defense reforms should be a priority, the most vital being the creation of a Chief of Defense Staff.

Key demand of the question:

The answer must first discuss the current conditions of defense system in India, need for reforms and how the coming of minister of security is a positive step in the right direction.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In a few lines discuss the importance of national security.

Body:

The answer must discuss the following:

Explain the issues around India's national security and defense, the measures taken to address them ranging from setting up of Defense Planning Committee (DPC) to creation of national security strategy, international defense engagement strategy.

Then move on to discuss the concerns in dealing with security issues.

Bring out the positives of having created a dedicated minister for security, its significance.

Conclusion:

Conclude with way forward as to how the country is in need of defense reforms and this is a right step in the right direction.

Introduction:

- The state of India's national security and defence is getting worse than before and are in a dire need of reform. With the China-Pakistan Economic Corridor rapidly taking shape, the China-Pakistan embrace has got much tighter as has the convergence between China and Russia.
- China has intensified military engagements with several South Asian and Indian Ocean region states. Keeping in light all these there is a great necessity for India to reform its defence forces.

Body:

The need for defence reforms in India is due to the following challenges:

- **Military planning:**
 - It is hamstrung by lack of a clearly articulated and integrated military strategy. In such a situation, the three wings of the military are left to devise their own strategies and military philosophies, which could end up being at cross purposes with each other.
 - The reasons that can be ascribed to this state of affairs is the absence of military expertise at the apex level of national security and defence matters, exacerbated by **non-institution of the appointment of Chief of Defence Staff** to coordinate defence policy and strategy more meaningfully.
- **Centralisation:**
 - There are concerns that appointing NSA to SPG would lead to further centralisation of decision making.
 - The post of the NSA is also not a legally-mandated one and he has no parliamentary accountability.
- **Line of Control:**
 - Overall violence in Jammu and Kashmir and ceasefire violations on the Line of Control reached a 14-year high in 2017, and did not subside in 2018.
 - There are far more attacks on security forces and security installations in J&K, and militant recruitments and violence against civilians in the State are rising at an alarming rate.
- **Neighbourhood policy:**
 - Though the government claims that the surgical strikes of 2016 gave a befitting response to Pakistan, it hardly made any significant gains in reality.



- A report of the Parliamentary Standing Committee on External Affairs recently revealed that the Chinese forces are back in the Doklam plateau with more force.
- The report goes on to fault the government for continuing with its conventionally deferential foreign policy towards China.
- India's neighbourhood policy holds a clear absence of vision on how to balance, engage and work with the many great powers in the regional and the broader international scene.
- **Defence preparedness:**
 - India spends close to \$50 billion annually on defence and yet might still be ill-equipped to fight the wars of the modern age, especially in the neighbourhood.
 - India also suffers from almost non-functional higher defence organisation and the defence policy doesn't hold any political oversight or vision.
- **Defence management:**
 - There is little conversation between the armed forces and the political class, and even lesser conversation among the various arms of the forces.
 - Our doctrines, command structures, force deployments and defence acquisition continue as though each arm is going to fight a future war on its own.
- **Institutional lacuna:**
 - In India, talk of appointing a Chief of Defence Staff (CDS) has died down and the key post of military adviser in the National Security Council Secretariat (NSCS) remains vacant.
 - The NSC almost never meets and the National Security Advisory Board, initially set up to seek 'outside expertise' on strategic matters, has become a space for retired officials.
- **Modernisation:**
 - The state of modernisation and domestic defence industry in the country are in a sorry state.
 - Under the present system, where the ratio of revenue to capital expenditure in defence is roughly 65:35%, any serious attempt at modernisation would be impossible.

Minister of Security:

- The prime minister has added a sixth member to his Cabinet Committee on Security (CCS) known as "Minister for Security".
- The CCS currently comprises ministers of home, defence, finance, external affairs and Security, headed by Prime Minister.
- The new minister is granted a full-fledged cabinet minister rank.

Significance of Minister of Security:

- It reduces the burden of Minister of Defence to an extent.
- It increases the accountability
- The present NSA's credentials and expertise in the fields of internal security and intelligence as well as the affairs of our "near abroad" are well-known and his elevation could be the key to ensuring that focus is retained on national security.

Conclusion:

- There is clearly a need to view national security through a narrower prism and evolve a less ambitious doctrine that focuses on matters directly related to defence and security.
- It must provide strategic guidance to the military within clearly defined national aims and objectives.



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SECURE SYNOPSIS MAINS **2019**

GS-III

JULY **2019**



General Studies Paper - III

Topic: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment. Inclusive growth and issues arising from it.

Q) What do you understand by inheritance tax ? Do you think the reintroduction of such a tax would serve as a measure to prevent the concentration of income and wealth in the hands of a few ? Discuss. (250 words)

Livemint

Why this question:

The article talks about how Wealth inequality in India has been alarming and in what way Inheritance tax and its reintroduction can prevent the concentration of income and wealth in the hands of a few.

Demand of the question:

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction

Define what is an inheritance tax.

Body

Explain that an inheritance tax, coupled with associated tax reforms, can potentially prevent the concentration of income and wealth in the hands of a few, reduce intra-generational inequality, promote inter-generational equity, and serve a meaningful purpose to address the distributional gaps that exist in India today.

Explain that an inheritance tax, if implemented well, can potentially help the government exchequer at a time when it has been scouting for additional sources of revenue to bridge the persistent gap between fiscal targets and outcomes. Recent policies on farm loan waivers, bank recapitalization, universal health insurance, and the expansion of other social sector programmes will pose significant challenges in maintaining fiscal prudence.

List all the benefits and suggest what needs to be done.

Conclusion

Conclude with importance of such tax initiatives and reforms for the betterment of the economy.

Introduction:

- An inheritance tax, also called an estate tax, is a tax assessed on all or a portion of an inherited estate. Life insurance, pensions, real estate, cars, belongings and debts are all part of one's estate. The inheritance tax rate depends on the value of the inheritance and the beneficiary's relationship to the decedent.
- Such a tax can potentially prevent the concentration of income and wealth in the hands of a few. It is more than three decades since estate duty was abolished in India

Body:

The objective behind the reintroduction of an inheritance tax:

- Wealth, income, and consumption inequality is high and has been rising in India, particularly in the post-liberalisation period.
- Economists Lucas Chancel and Thomas Piketty, analysing the dynamics of income inequality between 1922 and 2014, found that income inequality in India is at its peak since 1922, when income tax was first introduced here. In the 1930s, the top 1% of earners in India accounted for less than 21% of total income. This dropped significantly to 6% in the 1980s. However, it thereafter steadily increased to a historical high of 22% in 2014.
- Wealth inequality in India has also been alarming. According to Credit Suisse 2018 Global Wealth Report, the richest 1% own 51.5% and the richest 10% account for 77.4% of the nation's wealth. In contrast, the bottom 60% of the population owns only a meagre 4.7% of it.
- While the per capita income of Indians has risen since liberalisation, growth has failed to be inclusive.
- An inheritance tax, coupled with associated tax reforms, can potentially prevent the concentration of income and wealth in the hands of a few, reduce intra-generational inequality, promote inter-generational equity, and serve a meaningful purpose to address the distributional gaps that exist in India today.



- An inheritance tax, if implemented well, can potentially help the government exchequer at a time when it has been scouting for additional sources of revenue to bridge the persistent gap between fiscal targets and outcomes.
- According to an Oxfam survey in 2018, the wealth of the richest 1% of the population increased by ₹20.91 trillion, equivalent to total budget of the central government in 2017-18.
- Moreover, 37% of Indian billionaires have inherited family wealth, and control 51% of the total wealth of billionaires in the country. The survey also points out that 51 of a total of 101 billionaires are more than 65 years old and collectively own ₹10.54 trillion.
- Thus, even a moderate inheritance tax of 10-15%, benchmarked to other Asian countries such as the Philippines, Taiwan and Thailand, can potentially act as a stable and significant source of revenue for the government.
- There has been a discernible improvement in the government's tax administrative capacity, drawing upon the strengths of the information technology revolution.
- Project Insight of the Central Board of Direct Taxes and the application of Big Data analytics to improve tax compliance have strengthened tax administration.
- This, along with the thrust towards a digital economy, could potentially reduce the marginal cost of administering and monitoring compliance of an inheritance tax.

Global Experience:

- Today, many developed countries such as the US, UK, France, Japan and the Netherlands have inheritance tax laws in place.
- The US imposes Gift Tax and Estate Tax (both taxes levied on the donor) at 40 percent with a combined lifetime exemption threshold for both taxes amounting to approximately \$11 million per person.
- Likewise, inheritance tax in the UK is levied at 40 percent, but with a far lower exemption threshold.
- The growing concern surrounding India's increasing economic disparity, the imposition of estate duty may seem desirable.

Concerns:

- The inheritance tax is payable by the legal representative to whom the property may pass on death.
- The recipient of the property may not have the money available to pay tax that could lead to situations of distress sale.
- Arguments against the levy of inheritance tax mainly revolve around fears regarding the outflow of entrepreneurial human capital and financial resources going abroad.
- With India being a developing country, keeping capital intact in the hands of entrepreneurs may represent a more efficient investment for economic development.
- India needs to review the case for re-introducing an inheritance/estate tax with, ideally, relatively high thresholds, so it's targeted at the very rich.

Conclusion:

- India's inheritance tax must not be used as a symbolic tool, marketed as a Robin Hood tax, for populism.
- Rather, the intent should be grounded in the substantial distributional inequities that exist in the country today.

Q) “Economic growth and human development need to go hand in hand, without it a \$5 trillion economy seems a distant dream”. Critically examine. (250 words)

Livemint

Why this question:

The author in the article discusses in detail how a \$5 trillion economy seems a distant dream unless the country revives aggregate demand and healthcare.

Key demand of the question:

Students are expected to elucidate on how economic growth is linked to human development and one can not be achieved without the other.

Directive:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.



Structure of the answer:

Introduction:

Discuss the dream of \$5 trillion economy in short.

Body:

One has to explain that the country still has not overcome the challenges related to human development such as health aspects, ageing population, employment, lack of investments in agriculture etc.

Then explain how the above problems have consequences on economic growth of the country.

Take cues from the article and explain in what way it is essential for the country to focus on human development to achieve greater goals of economic growth.

Conclusion:

Conclude by emphasizing need to work on human development front to ensure continuous economic growth and development.

Introduction:

- The President of India spoke of India becoming a “Five Trillion Dollar” economy, last month. It was reiterated by the Prime Minister and was even discussed in the NITI Aayog Governing Council meet.
- India is, currently, a \$2.8 trillion economy; to reach the \$5 trillion mark by 2024, the economy would require nominal growth in dollar terms of over 12% a year. To reach \$ 5 Trillion, we need to shift our perspective from policy to projects

Body:

Challenges towards realising the \$5 trillion economy goal:

- **Health aspects:**
 - Huge losses of output inherent in the incapacity of the aged increasingly vulnerable to non-communicable diseases (e.g. diabetes, cardiovascular diseases, cancer).
 - Only 54.9 % of infants aged between 0-5 months are exclusively breastfed which is very essential for a child’s optimal growth, development and health at least till 6 months of age.
 - Female mortality rate in India is 139 and 212 for male per thousand respectively.
 - India being a tropical country is always under a constant threat of climate related epidemics such as dengue, malaria etc. Incidence of malaria is 18.8 people per thousand at 2016 levels.
 - India remains to be the highest TB burden country according to WHO, with as many as 211 people per lakh suffering from either newly contacted or relapsed TB.
 - India spends 3.9% of its GDP on health expenditure
 - Relative to those who were not afflicted with NCDs, those who did display higher probabilities of being not employed and just employed, had much lower probabilities of part-time and full-time employment.
- **Education:**
 - The ASER report by Pratham shows poor arithmetic and reading skills among primary school children.
 - Gross Enrolment Ratio (GER) in pre-primary was 13% of pre-primary school age children showing acute under admission and lack of importance given to early years of schooling in India during 2012-17.
 - Primary school dropout rate in India during 2007-2016 was 9.8%.
 - Survival rate to the last grade of lower secondary general education during 2016-16 was 97%.
 - Total government expenditure on education is a paltry 3.8% of total GDP.
- **Social constraints:**
 - Brahmins and other “forward” castes showed notably lower probabilities of being not employed, or just employed, but higher probabilities of being employed part-time and full-time, compared to Other Backward Classes (OBCs).
 - Dalits and tribals displayed patterns similar to OBCs’.
 - India has a huge gender disparity leading to poor women labour force participation.
- **Ageing population:**
 - Indian population is estimated at 1339.2 million in 2017 and is estimated to reach 1513 million by 2030.
 - The aged (60 years and above), with their growing vulnerability to NCDs and disabilities (such as the inability to walk and dress, apart from speech and vision impairment), and caste and education barriers impeding their employment.
 - Old age acts as a barrier to part-time and full-time employment.



- This can impede the growth and even fail the benefits of demographic dividend.
- **Unemployment:**
 - Unemployment touched a 45-year high of 6.1% in 2017-18 according to the recently released first periodic labour force survey (PLFS) report.
 - This has resulted in slowing of gross domestic product growth.
 - Deepening crisis in agriculture, the paralysis of the informal sector, sputtering manufacturing growth and slowing exports are all causes for high unemployment rate in India.
- **Lack of investments in agriculture:**
 - There is neither renewed emphasis on investment-driven growth, nor higher outlays on agriculture, are likely to substantially boost employment

Measures needed:

Agricultural sector:

- Encouraging public and private investments to develop infrastructure like cold chains;
- Special attention for north-eastern, eastern and rain-fed states for augmenting scope of access to institutional credit;
- Rationalisation and targeting of input subsidies towards small and marginal farmers.

Manufacturing Sector:

- A three-pillar strategy to achieve required expansion of output — focus on existing high impact and emerging sectors as well as MSMEs.
- In the defence sector, there is a need to identify key components and systems and encourage global leaders to set up manufacturing base in India by offering limited period incentives.
- Ensure incentives result in technology/process transfer.
- Measures to boost manufacturing in other areas including aeronautical, space, garments, organic/ayurvedic products besides emerging areas such as biotechnology, electric mobility, unmanned aerial vehicles, medical devices, robotics and chemicals.
- For micro, small and medium enterprises, there is a need to improve access to funding by way of development of SME credit risk databases, SME credit rating, and creation of community-based funds

Services sector:

- There is a need for focus on champion services sectors like IT, tourism, medical value travel and legal would be required to achieve the expansion of the services sector output and concerted efforts need to be made to increase exports.
- Improving rail connectivity and seamless connectivity to major attractions.
- E-commerce policy and regulatory framework for logistics segment.
- To promote growth of accounting and financial services, there is a need to pitch for promoting FDI in domestic accounting and auditing sector, transparent regulatory framework, and easing restriction on client base in the accounting and auditing sector

Way forward:

- India needs to carry out the crucial internal reforms that will allow it to be a productive international player and to take on the leadership roles that so many people across the world hope that it will.
- Reorganization of the health system with much greater emphasis on primary medical centres or PMCs
- Any improvement in the life of the majority would require a re-alignment of the growth process so that it is less damaging.
- This would very likely require that we have slower growth but the process can be configured to channel more of it towards poorer groups.
- India could and should aspire to double-digit growth. Without sustained growth at that all levels it has little hope of employing the roughly one million young people who join its workforce every month.
- And unless it takes advantage of its current, favourable demographics it is never likely to emerge as an upper-middle-income economy with a prosperous and thriving middle class.

Q) Fifty years after bank nationalisation, banking is still seen as an enterprise driven by social purpose and political considerations and not depositors' interests. Discuss. (250 words)

[Indianexpress](https://www.indianexpress.com)

**Introduction:**

- July 19, 2019 marks 50 years of nationalisation of 14 commercial banks in India by the Indira Gandhi government. The measure of bank nationalisation came into effect under the Banking Companies (Acquisition and Transfer of Undertakings) Ordinance.
- The ownership of 14 major commercial private banks – estimated to be controlling 70 of the deposits in the country – was transferred to the government. According to many economists nationalization of banks was the single-most-important economic policy decision taken by any government after 1947. The impact of this decision is considered by some to be, even more than the economic reforms of 1991.

Body:**Rationale behind Nationalization of banks:**

- address the rising economic difficulties in the 1960s
- remove control of the few on banking system
- provide adequate credit for agriculture, small industry and exports
- professionalize bank management
- encourage a new class of entrepreneurs

Nationalization of Banks – as an enterprise driven by social purpose and political considerations:**Positives:**

- Control over some important parts of the so-called commanding heights of the economy has been eased by successive governments.
- Indian banking too has changed in terms of reach and penetration, formalisation of credit, channelizing savings for investment and for funding anti-poverty programmes, products offerings, service quality, efficiency, credit support to industry and other segments including in rural areas, helping to reduce regional disparities and boosting economic growth.
- In July 1969, at the time of nationalisation of banks, there were just 8,262 bank branches in the country. At the end of June 2018, state- owned banks alone had built a network of branches or a franchise of over 90,000 (over 29,000 in rural areas) and over 1.45 lakh ATMs while private banks had 28,805 branches.

Negatives:

- Some of the objectives of that political move in 1969 may have been achieved in the first decade or two.
- But what has remained unaltered in the last 50 years despite economic reforms is the political philosophy and belief.
- The political pay-offs are evident when the government retains control over the lenders. g.: The repeated instances of waiver of farm debt.
- Besides competition, rapid technological changes and innovation are transforming the way banks operate and when the government is struggling to cope with competing demands such as funding infrastructure projects, social sector programmes and delivering public goods. The result is Private banks have managed to chip away at the share of PSUs.
- The political philosophy reflected in the continuing ownership of many banks has come at a huge fiscal cost and poses a risk to financial stability. In the last five years alone, the recap tab at over Rs.3 lakh crore is far in excess of the aggregate funds, which many governments had infused over close to three decades, indicating the scale of the problem.
- Subsequent regimes have tried to pursue consolidation of banks. This is a politically less fraught affair compared to the option of privatisation but does not address the fundamental issue of governance, incentive structures for bankers, dual control and the separation of ownership or the distancing of the owner, the government from the management of the bank.

Nationalization not in depositor's interest:

- Most public sector banks (PSBs) are not in the desired position.
- The move failed to eradicate poverty and in scaling down inequalities of income, wealth and entitlements, especially in rural India.
- The performance of nationalised banks, on the parameters of branch expansion as well as increasing the number of deposits, never surpassed that of private banks.
- The real purpose was that it gave the ruling party access to finance as and when it needed without having to resort to black money.
- The government has pumped in over Rs 2.5 trillion in the last few years (including Rs 70,000 crore in 2019) and it still may not be enough.
- PSBs continue to struggle with a higher level of non-performing assets.



- **Recapitalisation:** The government does not have the fiscal space to continuously pump capital into PSBs. Click [here](#) to know more on recapitalisation.
- The idea of using recapitalisation bonds too has its limits as it is increasing the government's liability.
- **Technology:** The role of technology in banking and finance is rising rapidly.
- PSBs, with their weak balance sheets, are not in the best position to adapt and compete on this front.
- Naturally, the business will increasingly shift towards private sector banks.
- **Reforms:** It would be hard to implement the required reforms in PSBs in the present set-up.
- PSBs, which account for 66% of outstanding credit and 65.7% of deposits, need functional and operational independence.
- With the government being the majority shareholder, this will be difficult to attain.

Conclusion:

- Given the significance of a vibrant banking system in the growth story of the nation, privatisation of banks is proposed. However, privatisation of banks is not a panacea.
- India must not make haste in going for the privatisation of banks, rather it must focus on comprehensive governance reforms, resolution of NPAs and creating a free market so that investment can be reinvigorated and wheels of the economy can again get back on track.

Q) What are Private equity funds? Trace the growth of PE Funds in India. List down the advantages and disadvantages of the same. (250 words)

[Livemint](#)

Why this question:

The news of Café Coffee Day founder V.G. Siddhartha's disappearance has brought into focus the role of private equity (PE) investors in shaping the startup culture in India.

Key demand of the question:

The answer must evaluate the concept of private equity funds and trace the growth of PE funds and the advantages and disadvantages.

Structure of the answer:

Introduction:

Define what are PE funds.

Body:

Equity capital that is not quoted on a public exchange is Private Equity. Private equity funds are investment companies that, as a rule, do not hold publicly-traded securities but seek the equity stakes in private companies.

Then discuss the Growth of PE Funds in India.

PE investors have been enticed by India's growing status as an economic powerhouse, its strong entrepreneurial spirit.

Discuss their advantages and disadvantages.

Conclusion:

Conclude with way forward, suggest upon the importance of PE funds and need for their regulatory mechanism.

Introduction:

- A Private Equity Fund, also known as Private Equity, is **equity capital which comprises of investors who invest directly in private companies**. This equity capital is not listed on the stock exchange and usually follows general investment criteria of investing in varied industries or follows industry specific criteria.
- Considering that **holding periods for private equity funds are long**, therefore, **private equity capital is raised from institutional and retail investors who can afford to invest large sums of money for longer time periods**.

Body:

Growth of PE funds in India:

- In India, PE line of financing is still in its nascent stages.
- While in the early 2000s, the focus of PE investments was towards the **booming sector of Information Technology** due to its dynamic growth opportunities.
- However, after the **burst of the dot-com bubble**, PE investors shifted focus to other commercially viable industries.
- Another hindrance to the rising graph of the PE investment was the **economic meltdown in 2008- 2009** which substantially deflected the investment deals size.



- However, consequently Flipkart's USD 150 million, 4th round funding in 2012 Q1 kicked off an overall positive sentiment in funds investing in the domestic e-commerce industry.
- India witnessed an increase in the number and size of PE investments made in 2014 aggregating to around \$11.5 billion, which was 17% higher than the total investment value as compared to the same period the previous year.
- PE investors have been steadfastly interested in certain lucrative sectors including **E-commerce, financial services, power and, energy among others.**
- Most notably, in the current economic scenario, Indian real estate industry owes its foundation to private equity.
- PE financing, in a broad ambit – now makes up **75 percent of the funds in India's real estate sector**, compared with just about a fourth in 2010.

Advantages:

- **Untapped Potential:** The arena of potential company investments for private equity a vastly uncharted and untapped territory. There are several options looming in the horizon, from unlisted privately owned companies which have just begun expanding, unpopular divisions of larger organizations or even companies which aren't doing well on the stock market and make them private.
- **Stringent Company Selection Process:** Firms which handle private equity investments are highly selective and spend a considerable amount of resources to assess the potential companies which they could invest in. This also involves an understanding of the risks involved and how to ease the same. From scores of potential companies, managers can be highly selective and choose one company which possesses all the required characteristics.
- **Clear Accountability:** Management teams of private equity owned companies are accountable to an engaged professional shareholder who has the right to protect their shareholding and act accordingly.

Disadvantages:

- **Money laundering:** It is alleged that some PE capital is actually political money routed via tax havens such as Mauritius to convert it into white money.
- Some so-called equity PE deals are actually debt transactions involving the issue of fully convertible debentures or compulsorily convertible preference shares.
- The agreement may even carry a "put" option in favour of the PE investor or a "buyback" clause that makes it incumbent upon the promoter to buy the security at a specified price and time. Promoters who do not have the money are forced to borrow or sell other assets to arrange money for the buyback

Conclusion:

- The private equity segment has also played a crucial role in the growth and development of many small and medium-size enterprises. It has also stimulated employment opportunities in the country and aided the progress of strategic capabilities.

TOPIC: Effects of liberalization on the economy, changes in industrial policy and their effects on industrial growth.

Q) What do you mean by liberalization? How does it affect the international business environment? What led to Liberalisation of Indian economy? Discuss. (250 words)

Indian Economy by Dutt and sundaram

Why this question:

The question is direct from GS paper III, it seeks to examine the effects of liberalization on international business environment and the causative factors responsible for liberalisation of Indian economy.

Key demand of the question:

The answer must discuss in detail what is liberalization, effects of it on international business environment, and the factors responsible for liberalisation of the Indian economy.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Describe what is liberalization.

**Body:**

Explain what you understand by liberalization?

What are the major goals of economic liberalization?

What is the importance of Liberalization?

Then discuss that the economic liberalization in India refers to the changes and reforms, initiated in 1991, of the country's economic policies, with the goal of making the economy more market- and service-oriented, and expanding the role of private and foreign investment.

Explain its effect on international business environment.

Conclusion:

Conclude with way forward and reassert the significance of it.

Introduction:

- Liberalization is defined as laws or rules being liberalized, or relaxed, by a government. Economic liberalization is generally described as the relaxing of government regulations in a country to allow for private sector companies to operate business transactions with fewer restrictions.
- It is usually promoted by advocates of free markets and free trade, whose ideology is also called economic liberalism. Economic liberalization also often involves reductions of taxes, social security, and unemployment benefits.

Body:

- With reference to developing countries, this term denotes to opening of their economic borders to multinationals and foreign investment.
- Many economists explained that economic liberalization is “opening up” to the rest of the world with regards to trade, regulations, taxation and other areas that generally affect business in the country.

Conditions that led to liberalization of Indian Economy:

- **Rise in Prices:**
 - Price rise continuously in India. The inflation rate increased from 6.7% to 16.7%. Due to inflation country's economic position became worse. Main reason for inflation was rapid increase in money supply. It was due to deficit financing Deficit financing means borrowing from Reserve Bank of India by Government to meet its deficit.
- **Rise in Fiscal Deficit:**
 - Due to increase in non- development expenditure fiscal deficit of the Govt. had been increasing. To cover the fiscal deficit, the Govt. has to raise loans and pay interest on it. Due to rise in fiscal deficit there was rise in public debt and interest. In 1991 interest liability became 36.4% of total govt. expenditure. The Govt. caught in debt trap. So Govt. has to resort to economic reforms.
- **Increase in Adverse Balance of Payments:**
 - When foreign exchange falls short for payment otherwise total imports exceed total exports, problem of adverse balance of payments arise. Though incentives are given for export promotion yet the desired results cannot be achieved. It is due to the fact that our export goods could not compete in price and quality. Liability of loan and its interest payment goes as increasing. It made balance of payments adverse.
- **Iraq War:**
 - In 1990-91, war in Iraq broke, and this led to rise in petrol prices. The flow of foreign currency from Gulf countries stopped and this further aggravated the problem.
- **Dismal Performance of Public Sector Undertakings:**
 - PSU's are enterprises wholly owned by Govt. have invested crores of Rs. in these enterprises. These are no performing well due to political interference and became big liability for Govt.
- **Fall in Foreign Exchange Reserves:**
 - Indians foreign exchange reserve fell to low ebb in 1990-91 and it was insufficient to pay for an import bill for 2 weeks. In 1986-87 foreign exchange reserves were Rs. 8151 crores ad in 1989-90, it declined to Rs. 6252 crores. Then Govt. had to sell Gold to meet the import liability.

Impact of Liberalization on international business environment:

- Investing in emerging market countries can sometimes be an impossible task if the country you're investing in has several barriers to entry.
- These barriers can include tax laws, foreign investment restrictions, legal issues and accounting regulations, all of which make it difficult or impossible to gain access to the country.



- The economic liberalization process begins by relaxing these barriers and relinquishing some control over the direction of the economy to the private sector. This often involves some form of deregulation and privatization of companies.
- Foreign companies got free access to Indian markets and made domestic products un-competitive. They obviously had better access to technology and larger economies of scale.
- The primary goals of economic liberalization are the free flow of capital between nations and the efficient allocation of resources and competitive advantages. This is usually done by reducing protectionist policies such as tariffs, trade laws and other trade barriers.
- One of the main effects of this increased flow of capital into the country is it makes it cheaper for companies to access capital from investors. A lower cost of capital allows companies to undertake profitable projects they may not have been able to with a higher cost of capital pre-liberalization, leading to higher growth rates.
- Software, BPO, KPO, LPO industry boom in India has helped India to absorb a big chunk of demographic dividend, which otherwise would have wasted. Best part is that export of services result in export of high value.
- In banking too India has been a gainer. Since reforms, there have been three rounds of License Grants for private banks. Private Banks such as ICICI, HDFC, Yes Bank and also foreign banks, raised standards of Indian Banking Industry. Now there is cut through competition in the banking industry, and public sector banks are more responsive to customers.
- Stock Markets are platforms on which Corporate Securities can be traded real time. It provides mechanisms for constant price discovery, options for investors to exit from or enter into investment any time. These are back bone of free markets these days and there is robust trade going all over the world on stock exchanges.
- Telecom sector was a government owned monopoly and consequently service was quite substandard. After reforms, private telecom sector reached pinnacle of success. And Indian telecom companies went global. However, corruption and rent seeking marred growth and outlook of this sector.

Conclusion:

- In the Indian case the term liberalisation is used to show the direction of the economic reforms-with decreasing influence of the state or the planned or the command economy and increasing influence of free market or the capitalistic economy.
- It is a move towards capitalism. India is attempting to strike its own balance of the 'state-market mix'. It means even if the economic reforms have the direction towards market economy it can never be branded a blind-run to capitalism.
- Since the economy was more like the state economy in the former years, it has to go for a greater degree of mix of the market.

Q) Do you think airlines in India can be run professionally under government control just as private airlines? Critically analyse. (250 words)

[Livemint](#)

Why this question:

The question seeks to examine the possibility of professional establishment of govt. airlines like that of the private ones amidst the recent debates surrounding the aviation industry.

Key demand of the question:

The answer must examine the possibility, associated issues and concerns.

Directive:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

Begin with brief introduction of the aviation sector scenario in India.

Body:

Discussion should include the following:

First explain that in India in the early phase of commercial aviation, airlines were state-owned and profits were not the list of priorities behind the commercial operations. After the liberalization of air travel in the 1980s, there was intense competition. Low-cost carriers, introduced cut-throat rivalry,



and government airlines started struggling. However, privatization is not a panacea for current problems of airlines. Some airlines despite being owned by the government are doing well.

List the issues plaguing the aviation sector, specifically the government ones and conclude what can be done.

Conclusion:

Conclude with way forward.

Introduction:

- The suspension of operations at Jet Airways — at one time India's largest private airline — announced recently, follows the troubles at Kingfisher, Air Deccan, and Sahara. The aviation sector is rife with hope and distress in a highly competitive market over the last 30 years.
- Despite the fact that the Indian civil aviation industry is currently considered the third largest domestic civil aviation market in the world, the industry is suffering from several problems India's government is pushing towards the privatisation of its debt-laden carrier Air India, which is losing market share amid cut-throat domestic competition.

Body:

Yes, Government can professionally run airlines in India:

- There is no empirical evidence that private sector can run a better airline. After being privatised British rail has gained a reputation for poor services and management.
- There are many sectors and routes which the private airlines may not be interested in flying as they may not find them economical to operate.
- Connectivity to northeast and other sectors which were not explored by private airlines were undertaken by air India but now this might be an issue.
- In some situations, it is necessary to carry out emergency evacuations of Indian nationals from other countries due to natural hazards, political instability or wars.
- The civil aviation market in India, like in many parts of the world, is oligopolistic, with a few firms controlling large market shares.
- Forcing the exit or merger of an established state-run airline with the third largest market share by which has 31% of the planes in the sector and prime slots at airports worldwide will only aid in the undesirable concentration of market power with a few already large private airlines, and will prove anti-competitive.

No, privatization is better for airlines:

- Indian state need not run commercial enterprises for the simple reason that it tends to compromise profit for achieving overall welfare of the people
- In the case of Air India, the airline needs better management so as to not be a burden on the country's finances.
- The government will have to keep bailing out Air India with taxpayers' money if it decides to hold on to it.
- In the case of Air India, the cost is a lot higher as it is consistently making losses and is dependent on the government for survival. Further, the presence of state-owned enterprise distorts the market.
- A firm with access to government finances and practically no fear of failing affects price discovery in the market and can hurt private sector operators in the business.
- The government has fiscal constraints and needs to spend more in important areas such as health and education.
- The privatisation of airlines will ensure that the industry will run in a rational way. The private player, will bring about a rational spending, funding and capital infusion in Air India.
- According to **Economic survey**, disinvestment in public sector airlines will help boost Indian airlines' international market share.
- Problems faced by public sector airlines could be diluted:
 - For instance, since 2011-12, despite infusing Rs 24,000 crore of taxpayer money as equity support into Air India, the domestic share of the carrier has fallen from 19% to 13%.
 - The accumulated debts of the carrier have increased to around Rs 50,000 crore.
 - The national carrier is one among other airlines that were struggling and is still undergoing a 10-year rehabilitation package that started in 2012.
- Brings in more professionalism and reduces political interference.
- Competition might lead to lower fares.
- Helps it to achieve targets under UDAN scheme.

**Way forward:**

- **Offer a single integrated network:**
 - The domestic and international operations should be offered in one line, as there is significant value in the feed which they provide to each other. Air India is also part of a global system as a result of its membership of Star Alliance. Separation of domestic and international operations will result in reduced interest.
- **Provide comprehensive disclosures:**
 - The data room should include detailed information on Air India's finances and labour contracts as these are two of the most sensitive issues that will impact interest and valuations. A large proportion of the technical staff is due to retire within the next 5-10 years which is an issue that the new owners will need to prepare for.
- India should encourage development of domestic hubs so that Indian airlines can take passengers directly, instead of foreign carriers first taking passengers to their home countries and then offering them onward connections.
- To make private airlines operate in uneconomical routes, special incentives or subsidies can be granted to airlines operating on such routes.
- The government can establish a specialised agency under the Defence or External Affairs Ministry for evacuating Indians from foreign countries.
- On easing current restrictions on Indian airlines to fly overseas, the Survey has advocated a further liberalisation of the 0/20 rule.
- Public sector airlines will have to cut layers of management, align staff by role, bring in lateral hires, overhaul customer facing functions, and implement a massive training exercise.

Q) Examine the impact of liberalisation on Indian companies, to what extent are they competing successfully with the MNCs? Discuss. (250 words)

Indian economy by Dutta and Sundaram

Why this question:

Key demand of the question:

The question is about analysing the impact of liberalisation specifically on the Indian companies and in what way they are competing the MNCs satisfactorily.

Directive:

Examine – When asked to 'Examine', we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Begin with brief introduction on what you understand by liberalization.

Body:

Discussion should include the following:

First explain the effects of liberalization in general and then explain how it impacted the Indian companies and in what way is the impact different from that on the MNCs

Explain that Foreign direct investment (FDI) in India is a major monetary source for economic development in India. Foreign companies invest directly in fast growing private Indian businesses to take benefits of cheaper wages and changing business environment of India.

Then discuss in what way it is helping the Indian companies to compete with other MNC's successfully, what are the challenges associated etc.

Conclusion:

Conclude with way forward.

Introduction:

- Liberalization is defined as laws or rules being liberalized, or relaxed, by a government. Economic liberalization is generally described as the relaxing of government regulations in a country to allow for private sector companies to operate business transactions with fewer restrictions.
- It is usually promoted by advocates of free markets and free trade, whose ideology is also called economic liberalism. Economic liberalization also often involves reductions of taxes, social security, and unemployment benefits.

**Body:****Impact of Liberalization on Indian companies:****1. Impact on Small Scale companies:**

- After independence, government attempted to revive small scale sector by reserving items exclusively for it to manufacture. With liberalization list of reserved items was substantially curtailed and many new sectors were thrown open to big players.
- Small scale industry however exists and still remains backbone of Indian Economy. It contributes to major portion of exports and private sector employment. Results are mixed, many erstwhile Small scale industries got bigger and better. But overall value addition, product innovation and technology adoption remains dismal and they exist only on back of government support.

2. Impact on Services Sector

- In this case globalization has been boon for developing countries and bane for developed ones. Due to historic economic disparity between two groups, human resources have been much cheaper in developing economies.
- This was further facilitated by IT revolution and this all culminated in exodus of numerous jobs from developed countries to developing countries. Here US have to jealously guard its jobs as we guard our agriculture.

3. Information Technology industry

- Software, BPO, KPO, LPO industry boom in India has helped India to absorb a big chunk of demographic dividend, which otherwise would have wasted. Best part is that export of services result in export of high value. There is almost no material exported which consume some natural resource. Only thing exported is labor of Professionals, which doesn't deplete, instead grows with time. Now India is better placed to become a truly Knowledge Economy.
- Exports of these services constitute big part of India's foreign Exchange earnings. In fact, the only three years India had Current Account surplus, i.e. 2000-2002, was on back of this export only.

4. Telecom Sector

- Conventionally, Telecom sector was a government owned monopoly and consequently service was quite substandard. After reforms, private telecom sector reached pinnacle of success. And Indian telecom companies went global. However, corruption and rent seeking marred growth and outlook of this sector.
- Entry of modern Direct to Home services saw improvements in quality of Television services on one hand and loss of livelihood for numerous local cable operators.

5. Education and Health Sector

- It should be noted that food (Agriculture), Health and education (and to lesser extent banking) are among basic necessities, which every human being deserves and can't do without. Unfortunately, in developing countries there is market failure in all these sectors and majority of people can't afford beyond a certain limit (or can't afford at all). Concept of free markets, globalization, liberalization etc. fails here miserably. Free markets provide goods and services to people who can afford paying for them, not to those who deserve and need these.
- Now if we consider these sectors from angle of our inclination towards free markets, certainly there has been lot of progress. There has been world class education available in India and Deregulation has resulted in Mushrooming of private engineering and Medical Colleges. But in reality, this had far reaching devastating effect on society.
- On Social front India's performance is deplored all over the world and it is probably behind all important developing economies. This lacuna has been recognized and government has taken the charge. In case of education almost universal enrolments has been achieved upto primary level and now impetus should be on improving quality, so that student of public schools comes at par with at least average private ones.

Conclusion:

- In the Indian case the term liberalisation is used to show the direction of the economic reforms-with decreasing influence of the state or the planned or the command economy and increasing influence of free market or the capitalistic economy.
- It is a move towards capitalism. India is attempting to strike its own balance of the 'state-market mix'. It means even if the economic reforms have the direction towards market economy it can never be branded a blind-run to capitalism.
- Since the economy was more like the state economy in the former years, it has to go for a greater degree of mix of the market.



Q) Trace the evolution of FDI in defence sector of India and also analyse the Implications of FDI in Defence on Self-Reliance and Indigenisation. (250 words)

[Financialexpress](#)

Why this question:

The question is based on the policy perspective with respect to the investments in the defense sector and in what way FDI brings in self-reliance and Indigenization.

Key demand of the question:

The answer must discuss the importance of FDI in defense, trace its evolution and analyse in detail its implications.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Discuss first the importance of investments in defense sector in general.

Body:

The body of the answer to have the following aspects covered in detail :

Explain the evolution of FDI in Defence Sector.

Then discuss the associated advantages (Transparency, Quality Products, Reduction of Reserves, Positive Performance Pressure on Public Sector Enterprises, Employment Opportunities etc.) and disadvantages (Security Concerns, Competition for Domestic Private Industry, Overbearing Presence of Foreign Companies etc.)

Then focus on to explaining the Implications of FDI in Defense on Self-Reliance and Indigenization.

Conclusion:

Conclude with way forward.

Introduction:

- India's defence industry received foreign direct investment (FDI) of a meagre USD 2.18 million during 2018-19. In 2014-15, 2015-16, and 2017-18, the sector attracted FDI worth USD 0.08 million, USD 0.10 million and USD 0.01 million, respectively, according to data given by Commerce and Industry Minister in a written reply in the Lok Sabha.

Body:

- Importance of FDI in defence sector lies in **Quality Products, Boost to Economy, Employment Opportunities, Increase in International Trade, Positive Performance Pressure on Public Sector Enterprises, Transparency and reduced corruption and Reduction of Reserves.**

Evolution of FDI in defence sector of India:

- The Defence Sector in India, being a strategic sector, was **traditionally reserved for the Public Sector till 1991.**
- Defence Public Sector Undertakings (Defence PSUs) and Ordnance Factory Board (OFB) monopolised defence products manufacturing while R&D was the exclusive turf of DRDO.
- The **concept of FDI in general was introduced in India in 1991** with the opening of the Indian economy.
- However, the Defence Sector was opened up 100% in **May 2001 for Indian Private Sector participation with FDI permissible up to 26%**, both subject to licensing.
- In August 2014, the Department of Industrial Policy and Promotion (DIPP) raised the limit up to 49% through Government route and above 49% through Cabinet Committee on Security (CCS), on case-to-case basis.
- The Government formulated a revised "Consolidated FDI Policy" in 2016, where the policy permitted FDI cap in defence, through **automatic route up to 49% and above 49% under Government route on case to case basis**, wherever it is likely to result in access to modern and "state-of-the-art" technology in the country.
- The **Government further raised FDI cap to 100% on again in 2016.** The phrase state-of-the-art was dropped for FDI above 49%. The **CCS approval was no more required.**
- However, the process of approval itself will include the Ministry of Defence (MoD) and the Ministry of Home Affairs (MHA) which will consider issues related to defence of the nation, internal security and every other matter which relates to the national security.
- The **requirement of single largest Indian ownership of 51% of equity has also been removed. A lock-in period of three years on equity transfer has been done away with in FDI for defence.**



Implications of FDI in Defence on Self-Reliance and Indigenisation:

- **Build industrial capability and ecosystem:** Utilise FDI as a route to attract much needed foreign capital to boost building of the indigenous defence industrial manufacturing capability.
- **Induction of modern technology:** Enhanced FDI, that enables majority stake holding by foreign company, represents not merely acquisition of funds but also realistic possibilities of access to coveted modern technologies for weapons and equipment. The weapons and equipment so manufactured, on becoming globally competitive, in turn, would attract more FDI and better technology and the progressive cycle goes on.
- **Reduction in imports:** FDI in defence is likely to substantially improve the country's capacity to manufacture defence weapons and equipment locally and meet both qualitative and quantitative requirements of the Armed Forces.
- **Greater reliability of supplies in war.**
- **Better spares support**
- **Insulation from Embargoes:** Currently, India procures most of the critical weapons systems and equipment that are either manufactured or both manufactured and integrated abroad. When the same weapons systems and equipment are manufactured in the country, indigenous production will tend to insulate the country from unilateral imposition of embargoes by whimsical foreign suppliers.

Way Forward:

- **National Defence Industrial Policy:** There is a genuine requirement to articulate National Defence Industrial Policy which should deal with all relevant issues pertaining to defence design, development and production.
- **Enhance FDI Cap:** It is strongly recommended to permit enhanced FDI, above 49 percent through Government route, in deserving cases without being overly protective about the Defence Public Sector Enterprises. Further liberalised FDI Policy in the Defence Sector is the need of the hour.
- **Minimise Procedural Delays:** Government should ensure that there is transparency, evident decisiveness and no room for bureaucratic/procedural delays and corruption.
- **Enhance interaction between Armed Forces and Industry:** The Armed Forces need to actively interact with the industry to enable focus on the technology desired in the future weapons systems and equipment.
- **Promote Export of Defence Products:** Exports should be encouraged to ensure economic viability of an enterprise as also to earn foreign exchange to offset the initial foreign exchange outflow.
- **Explore Strategic Partnership Model:** The partnership would essentially provide for long-terms needs of the Armed Forces. This route encourages the Industry to invest in Research and Development.
- **Build Military-Industrial Complex:** Suitable incentives, in terms of provision of funds for research, tax relief based on the investment made in research projects, provision of land on concessional rates to defence vendors, are required to be extended to encourage investment by Private Industry in R&D.
- **Extend Assistance to Domestic Private Sector:** India's Private Sector needs hand holding, in terms of technology to be able to graduate to manufacturing of complex modern weapons systems and military equipment by collaboration with foreign technology majors.
- **Encourage Multi-Nation Consortiums:** India should exploit its favourable geopolitical location and aspire to be a regional hub for global outsourcing of weapons and equipment. BrahMos Cruise Missile is an excellent example of high-grade output of consortium approach.

Conclusion:

- But at the same time we should realize that FDI is not a magic wand which can solve all the problems of the defence sector.
- So Increase in the FDI Cap should be complemented by other defence sector reforms such as ensuring enabling environment for investment, solving land acquisition issues etc.

Q) Do you think Insolvency and Bankruptcy Code can emerge as the lynchpin for resolving stressed assets in a time-bound manner? Critically analyse. (250 words)

[Livemint](#)

Why this question:

The Central government introduced the Insolvency and Bankruptcy Code (IBC) in 2016 to resolve claims involving insolvent companies. This was intended to tackle the bad loan problems that were affecting the banking system. Two years on the IBC has succeeded in a large measure in preventing corporates from defaulting on their loans. The IBC process has changed the debtor-creditor relationship.

Demand of the question:

The answer must analyse in detail the merits and demerits of Insolvency and Bankruptcy Code (IBC).



Directive word:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction

Define the basic features of Insolvency and Bankruptcy Code (IBC).

Body

Explain that Insolvency and Bankruptcy Code, 2016 is considered as one of the biggest insolvency reforms in the economic history of India.

This was enacted for reorganization and insolvency resolution of corporate persons, partnership firms and individuals in a time bound manner for maximization of the value of assets of such persons.

Then discuss the objectives of the IBC, explain the key aspects, the successes, challenges in implementation etc.

Conclusion

Conclude with way forward.

Introduction:

- The Government of India implemented the Insolvency and Bankruptcy Code (IBC) to **consolidate all laws related to insolvency and bankruptcy and to tackle Non-Performing Assets (NPA)**, a problem that has been pulling the Indian economy down for years.
- The Union cabinet’s approval of amendments to the Insolvency and Bankruptcy Code (IBC) to enhance its efficacy could bring relief to banks, foreign investors and others worried about the impact that quasi-judicial interpretations of the code’s grey areas might have on the country’s credit systems.

Body:

Yes, IBC is the lynchpin:

- **Unified law:** The interest of all parties i.e. lenders, borrowers and even operational creditors is now addressed under a unified law under the IBC.
- **Changed behavior of defaulters:** The IBC has given more teeth to lenders and has changed the credit behavior of borrowers. Now, there is a heartening trend of defaulters paying up dues before the case is admitted for insolvency under IBC.
- **Shift of control from debtor to creditor:** IBC proposes a paradigm shift from the existing ‘Debtor in possession’ to a ‘Creditor In Control’ regime, as now the Board of Directors is suspended in case of default and the IP manages the enterprise in the best interest of all its stakeholders.
- **Resolving the ‘chakravayuh challenge’:** IBC has made possible for struggling companies to ‘exit’ easily by allowing creditors to take the company to the NCLT for winding up.
- **Spurs professionalism in financing sector:** IBC has reduced crony capitalism, under and over invoicing, serial defaulters and lead to better allocation of capital by limiting the escape routes for defaulters and water tight frame for disposal of cases

Success of IBC so far:

- Due to the institution of IBC, we have seen that many business entities are paying up front before being declared insolvent. The success of the act lies in the fact that many cases have been resolved even before it was referred to NCLT.
- 4452 cases were dismissed at the pre-admission stage. Hence, it shows the effectiveness of IBC.
- Presently, there are 1332 cases before NCLT.
- Realization by creditors around Rs 80,000cr in resolution cases.
- Banks recovered Rs 5.28 lakh crore in 2017-18, compared to just Rs 38500 cr in 2016-17.
- The maximum amount recovered was Rs 4, 92,500 cr from 21 companies.
- 12 big cases are likely to be resolved this year, and the realization in these cases is expected to be around Rs 70000 Cr.

Challenges posing the IBC:

- **Tribunal issues:**
 - The NCLT started off well but they are clogging up now, they’re taking much longer than they did earlier.
 - More than 9,000 cases are before the 11 NCLT tribunals that have been set up around the country.



- National Company Law Appellate Tribunal (NCLAT) and that includes more than 2,500 insolvency cases.
- In the absence of jurisprudence and precedents, different NCLTs are giving different rulings.
- **Concerns with time stipulation:**
 - Regarding the time stipulation, in few cases the tribunal laid down that the 14-day period is only directive and not mandatory.
 - Also, the NCLAT has held that the provisions of the Limitation Act, which sets out the time-limits under which a complainant can approach the courts for redress, do not apply to proceedings under the Insolvency Code.
- **Administrative issues:**
 - IBC has failed to secure the due share of banks as the amount realized by banks in cases is falling too low, in some cases amount realized is less than even one-third of bank's claim value.
 - There have been loopholes in the functioning of Committee of Creditors. Nominated members of Financial creditors does not have any authority to take decisions upfront. It leads to a conflict of interest in reaching a revival plan.
 - There is no proper infrastructure of the Information Utilities (IU) that provide access to credible and transparent evidence of default.
 - There is a multiplicity of regulators to Insolvency Professionals i.e. presence of numbers of insolvency professional agencies (IPAs) to regulate professionals.
- **Authoritative Insolvency Resolution Professionals:**
 - The IBC's provision to throw the management out and replacing them with IRPs is consider to be draconian.
 - IRPs are a mix of chartered accountants, cost accountants, MBAs and retired public sector executives but there are many concerns has raised over the quality of the IRPs.
- **Drafting loopholes:**
 - Inevitably, there are loopholes in the Insolvency Act and some lawyers complain of poor drafting too.
 - For instance, the act has no provision for an amicable settlement once a case has been admitted.

Way forward:

- There is need for setting up more tribunals in different parts of the country to handle the greater-than-expected volume of cases.
- IBC must consider that there are distinct advantages if the existing management is allowed to keep running the company such as knowledge, information and expertise.
- India is more concerned with the recovery of NPA, not with the running of units, thus the first priority is to save the banking system.
- Thus the banks also must push policy makers towards this move because they're unlikely to get more if the case comes before the NCLT.
- Proactive training/onboarding of judges, lawyers, and other intermediaries will be necessary for effective implementation of the code.
- Technological infrastructure needs to be strengthened to avoid any kind of data loss and to maintain confidentiality. There is a requirement of enhanced IU infrastructure.

Conclusion:

- IBC as a structural reform has demonstrable impact, which is reflected in behavioural change among debtors, creditors and other stakeholders, it is the IBC or the insolvency law which has trumped even the GST.

Topic– Inclusive growth and issues arising from it.

Q) Discuss the impact of global warming on future economy and Jobs, explain more so specifically with respect to Indian scenario. (250 words)

[Indianexpress](https://www.indianexpress.com)

Why this question:

The article discusses the report, 'Working on a warmer planet: The impact of heat stress on labour productivity and decent work' anticipates an increase in "heat stress" resulting from global warming. It projects global productivity losses equivalent to 80 million full-time jobs in 2030, and the projection of 34 million jobs would make India the worst affected.

Demand of the question:

The answer must discuss the impact of global warming on future economy and Jobs.



Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments

Structure of the answer:

Introduction

Briefly discuss the recent trends in global warming, highlight the recent trends in it.

Body

The answer should discuss the following –

The report defines heat stress as heat in excess of what the body can tolerate without suffering physiological impairment. It generally occurs at temperatures above 35°C, in high humidity. Excess heat during work is an occupational health risk and restricts workers' physical functions and capabilities, work capacity and thus, productivity.

Take hints from the article and the report state how global warming can directly impact the job scenario and the economy.

Conclusion

Conclude by suggesting measures to tackle such adversaries.

Introduction:

- Climate change is certainly without argument the most serious global environmental crisis that we face. It is not the only environmental problem, but it is unique in its multi-scalar characteristic, from the global to the local. And, in many ways, it is arguably the most immediate of our problems.

Body:

India is more vulnerable to climate change:

- India, being a tropical country, is more susceptible to changes in temperature.
- Also, in India, about 50% of the population directly or indirectly depends on agriculture for a livelihood.
- The existent distress in the farm sector and the state governments' response with loan waivers has already strained their fiscal condition.
- Furthermore, the production of kharif crops is expected to decline.
- The possibility of adverse weather events is likely to increase in the future posing a greater challenge.
- The impact of climate change in agriculture is thus expected to reverberate in other sectors of the economy and affect the overall growth prospects.

Impact of global warming on India's future economy and Jobs:

- By 2030, India is expected to lose an equivalent of 34 million jobs as a result of global warming, says a report released by the ILO.
- The report, 'Working on a warmer planet: The impact of heat stress on labour productivity and decent work' anticipates an increase in "heat stress" resulting from global warming.
- It projects global productivity losses equivalent to 80 million full-time jobs in 2030, and the projection of 34 million jobs would make India the worst affected.
- The region projected to lose the most working hours is southern Asia, at 5% in 2030, corresponding to around 43 million jobs, respectively.
- A third of the southern Asian countries have already incurred losses greater than 4%.
- India, which lost 4.3% of working hours in 1995 because of heat stress, is projected to lose 5.8% of its working hours in 2030, which corresponds to 34 million jobs.
- The impact of heat stress on labour productivity and decent work' anticipates an increase in "heat stress" resulting from global warming.
- With some 940 million people active in agriculture around the world, farmers are set to be worst hit by rising temperatures, according to the ILO data, which indicates that the sector will be responsible for 60 per cent of global working hours lost from heat stress, by 2030.
- The report projects losses in working hours as **04% in agriculture, 5.29% in manufacturing, 9.04% in construction, and 1.48% in services.**
- Although most of the impact in India will be felt in the agricultural sector, more and more working hours are expected to be lost in the construction sector, where heat stress affects both male and female workers," the report says.
- There is little data in the country to corroborate trends of climate change and employment.



- However, that there has been no direct job loss at present, with distressed workers switching from one vulnerable sector to another.

Way forward:

- There is a need to strengthen its macroeconomic stability to deal with temperature shocks.
- India has considerably reduced its dependence on the monsoon as evident from avoiding a runaway inflation even after two successive years of drought.
- However, more needs to be done to enhance productivity in the agriculture sector.
- India can work on programmes that will help improve the quality of land and reduce the risk of climate change. Ex: Use employment under the MGNREGA to enhance soil and water conservation.
- India also needs to strengthen its overall capability by investing in and adopting new technology.
- We need to move climate change, global warming to the top of our foreign policy agenda.
- We need to start taking climate change more seriously, particularly on the adaptation side, because we really have a lot to be concerned about.
- And on the mitigation side, we have to be careful as we may not be fully exploring the scope of intersections between 'a low carbon agenda' and 'a development agenda'.

Q) “Despite India’s outstanding growth in the last two decades, low pay and wage inequality remain serious obstacles towards achieving inclusive growth. An effective minimum wage policy that targets the vulnerable bottom rung of wage earners can help in driving up aggregate demand, and building and strengthening the middle class, and thus spur a phase of sustainable and inclusive growth”. Comment. (250 words)

Livemint

Why this question:

The article highlights how in recent years, minimum wage systems have been strengthened by many countries to lift workers out of poverty and to reduce levels of inequality.

Key demand of the question:

The answer must bring out the relevance of minimum wage policy to Indian scenario and in what way it can be a game changer in alleviating people out of poverty and spurring sustainable and inclusive growth.

Directive:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

In brief explain what you understand by minimum wage policy.

Body:

Start by discussing the on going debate of the concept of minimum wage policy in economic survey. The Survey advises that the proposed labour code should include a provision for a minimum wage for both informal and formal sector workers, as 93% of the labour force is engaged in unorganized work. Discuss how and why India needs to have a mandatory national-level minimum wage to promote social justice and curb distress migration.

Discuss both the positives and negatives of such a policy.

Conclusion:

Conclude with a fair and balanced approach.

Introduction:

- The **International Labour Organization (ILO)** defines minimum wages as the **minimum amount of remuneration that an employer is required to pay wage earners for the work performed during a given period, which cannot be reduced by collective agreement or an individual contract.**
- A well-designed and streamlined minimum wage system is required to reduce wage inequality in India, the Economic Survey 2019 says.

**Body:****Need for a minimum wage policy in India:**

- Currently, the minimum wage system, under the Minimum Wages Act, 1948, in India is complex, with 1,915 different minimum wages defined for different job categories across States.
- Despite the complex system, workers were still falling through the gaps.
- About 93% of the labour force is engaged in unorganized sector.
- Salaries have undergone big increases in India and corporate emoluments have are increasing rapidly too.
- But wages (in real terms) remains where it was before the beginning of the 'New Economic Policy' of 1991.
- Wages of the unskilled workers vary wildly from Rs 850 per day in Kerala to a third of it in most other parts of the country.
- According to the ILO, One in every three wage workers in India is not protected by the minimum wage law.
- There are huge disparities within the various jobs in unskilled category. For instance, the minimum wage rate for domestic workers within a State is consistently lower than that for the minimum wage rates for security guards.

Pros of National Minimum wage policy:

- Workers who can cover the cost of living have better morale. They are more productive if they have a decent standard of living.
- A mandatory minimum national wage will force states to pay more than the floor rate, but not less
- It helps target the vulnerable bottom rung of wage earners can help in driving up aggregate demand and building and strengthening the middle class
- The move, the Survey said, will improve help regions attract investment and reduce distress migration.
- This would bring some uniformity in minimum wages across the country and make all states almost equally attractive from the point of view of labour cost for investment
- minimum wages can promote social justice without any major negative implication for employment if wages are set at an adequate level
- A minimum wage spurs economic growth. It gives workers more money to spend. This increases demand and business revenue.
- Workers who have more time and money can then invest in their education. This further increases their productivity. It improves the attractiveness of the country's labour pool. A more educated workforce increases innovation and the number of small businesses.

Cons:

- The minimum wage laws raise business labour costs. That's already the largest budget item for most of them. When the government forces them to pay more per worker, they hire fewer workers to keep the total labour costs the same. This increases the unemployment rate.
- It hits low-wage workers the hardest since they must now compete for fewer jobs. Some smaller companies may not be able to operate with fewer workers. They may be forced to declare bankruptcy instead.
- According to the Confederation of Indian Industries (CII), states should have the power to determine minimum wages as the concept of a national minimum wage will affect job creation.
- A minimum wage penalizes companies that are labour-intensive. By default, this rewards those that are in capital-intensive industries. Over time, this can shift the very fabric of the country's economic base.
- Minimum wage laws may increase job outsourcing. Companies move their facilities to countries where labour costs are lower.
- Minimum wage laws may not reduce the country's poverty. It helps the workers who have jobs but increases unemployment. Research shows experienced workers received higher pay for less experienced workers lost their jobs.
- It could raise the cost of living in some areas. A higher minimum wage allows workers to pay more for housing. As a result, landlords could raise rents, creating inflation.

Measures needed:

- Increasing the ambit of the minimum wage system, it recommended deciding minimum wages on the basis of skills and split across geographical regions.
- With the government in the process of bringing the Code on Wages Bill in Parliament, the survey said the rationalisation of minimum wages proposed by the Bill should be supported.
- The code will bring together the Minimum Wages Act, 1948, the Payment of Wages Act, 1936, the Payment of Bonus Act, 1965 and the Equal Remuneration Act, 1976 into a single legislation.



- The survey suggested the government should notify a **“national floor minimum wage”** across five regions, after which States can fix their own minimum wages, but not lower than the floor wage.
- This would bring uniformity and make States “almost equally attractive from the point of view of labour cost for investment as well as reduce distress migration.”
- The proposed Code on Wages Bill should extend applicability of minimum wages to all employments/workers in all sectors and should cover both the organized as well as the unorganized sector.
- A mechanism for regular adjustment of minimum wages should be developed, with a national-level dashboard at the Centre that States can access and update.
- An easy to recall toll-free number to lodge complaints about non-payment of minimum wages should be publicised.

Conclusion:

- A simple, coherent and enforceable Minimum Wage System should be designed with the aid of technology as minimum wages push wages up and reduce wage inequality without significantly affecting employment.
- An effective minimum wage policy is a potential tool not only for the protection of low paid workers but is also an inclusive mechanism for more resilient and sustainable economic development

Q) What are social stock exchanges? Discuss its need and potential in India. (250 words)

[Indianexpress](https://www.indianexpress.com)

Introduction:

- A social stock exchange (SSE) is a platform on which social enterprises, volunteer groups and welfare organisations will be listed so that they can raise capital.
- It will bring together social enterprises and impact investors on a common platform. Finance Minister announced that the government plans to create a social stock exchange (SSE) in the budget 2019. The SSE in India will be under the ambit of SEBI.

Body:

Need:

- Social enterprises are playing a very significant role in solving real problems in education, healthcare and financial inclusion.
- The Electronic Fundraising Platform acknowledges the problem of investment fundraising for such organizations
- It sends a positive signal that the government is bothered about the sector.
- It will help companies to have greater visibility and raise capital. For instance, if an entrepreneur can go to a single platform which he knows will be touched by a hundred investors, it becomes easier for him
- Listing on an exchange can be a viable alternative for impact startups to raise funding
- In India, the social impact startups are growing at 20 per cent annual rate while there are more than 400 such startups

Potential:

- The proposal has attracted much attention, and social entrepreneurs, among others, have said that the move can have a revolutionary effect on how they tap investors for capital.
- The exchange would help social and voluntary organisations which work for social causes to raise capital as equity, debt or a unit of mutual fund.
- It's good for the government to put in some resources in the creation of what should be viewed as a facilitating institution
- With the government distrustful of foreign donations to nonprofits, the exchange might help the sector generate more capital
- The proposal would be a radical experiment in a country characterised by stark inequality and rapid economic growth.
- If created, the exchange could provide new and cheaper sources of financing for social welfare projects, while showcasing India's independence from foreign aid as it seeks to enhance its position on the world stage.
- SSEs exist in several countries in various forms but there is no clarity about the Indian version yet on trading, tax benefit transferability and accountability of third parties

Social enterprises:

- A social enterprise is a revenue-generating business.
- Its primary objective is to achieve a social objective, for example, providing healthcare or clean energy.



- This in no way means that a social enterprise can't be highly profitable. In fact, most social enterprises look and operate like traditional businesses.
- The only catch is that the profit these entities generate is not necessarily used for payouts to stakeholders, but reinvested into their social programmes.
- **Forus Health**, a social enterprise manufacturing medical devices, with the larger vision of eliminating preventable blindness
- **ImpactGuru** is a donation-based crowdfunding startup serving NGOs, social enterprises, startups and individuals.

Global examples:

- **UK:** The Social Stock Exchange in London functions more as a directory connecting social enterprises and potential investors. Launched in 2013, it only accepts companies that pass its independent assessment on social impact.
- **Kenya:** The Kenya Social Investment Exchange, launched in 2011, connects vetted social enterprises with impact investors, both foreign and domestic. A listed social enterprise has to demonstrate social impact as well as financial sustainability beyond the funding period.
- **Canada:** Backed by the Ontario government, the SVX is an online platform that allows investments in Canadian companies and funds that have "a positive social or environmental impact". Retail investors are also allowed to participate.
- **Singapore:** The Impact Investment Exchange runs a social stock exchange in partnership with the Stock Exchange of Mauritius, which is open to limited accredited investors who want to invest.

Challenges:

- In a survey of Indian social enterprises by Brookings India, 57% identified access to debt or equity as a barrier to growth and sustainability.
- Lack of clarity of Social Enterprise in India.
- There is less clarity about how a stock exchange will help raise capital for "voluntary organisations".
- Social startups possibly lack the flexibility in raising capital from angel or venture capital investors, unlike a regular technology startup.

Way forward:

- The first thing the government needs to decide is how to distinguish between a social enterprise and a normal enterprise.
- It would be innovative if corporate social responsibility funds could be routed to social enterprises through the exchange
- This can help reduce misuse of CSR funds and help companies route funds through a more viable route

Conclusion:

- The Social stock exchange is a step in the right direction to help the cash starved social startups. This will further the cause of socio-economic development with much transparency and accountability.

Q) Provide for an analysis of recently released Global Innovation Index, Discuss the need for innovation and government efforts to promote the same. (250 words)

The hindu

Why this question:

Global Innovation Index 2019 has been released recently.

Key demand of the question:

The question aims to analyse the recently released Global innovation index and the performance made by our country and the efforts of the government in this direction.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Discuss in brief about GII.

Body:

Start with brief on findings of the report.



Discuss the salient features of the report – GII rankings are based on 80 indicators, from traditional measurements like research and development investments and international patent and trademark applications.

Theme for the year 2019 is – Creating Healthy Lives – The Future of Medical Innovation, which aims to explore the role of medical innovation as it shapes the future of healthcare.

It is published by a specialized agency of the United Nations – the World Intellectual Property Organization (WIPO) in association with Cornell University and graduate business school INSEAD.

Then list upon the performance of India and the key findings of the government initiatives in this direction.

Conclusion:

Conclude with way forward.

Introduction:

- The Government of India has launched the Global Innovation Index (GII) in New Delhi. This is the first time that the GII is being launched in an emerging economy.
- The Department for Promotion of Industry and Internal Trade (DPIIT) of Ministry of Commerce and Industry, Government of India, World Intellectual Property Organization (WIPO) and Confederation of Indian Industry (CII) are co hosting the event. India has jumped five places to rank 52 in the Global Innovation Index 2019, up from the 57 it had in last year's rankings.

Body:

Key Findings of Global Innovation Index 2019:

- Public R&D expenditures, particularly in some high-income countries, are growing slowly or not at all.
- Global landscape of science, innovation, and technology has undergone important shifts over the last decades.
- Asian economies especially middle-income one, are rapidly contributing to global research and development (R&D) and international patenting rates via WIPO's International Patent System.

Need for innovation in India:

- Key drivers of economic performance and social well-being.
- It is important to inculcate scientific temper among masses in order to fight superstitions, distorted truth and religious fanaticism that has been crippling India
- Innovation and technological improvement has become essential to combat and adapt to climate change and promote sustainable development,
- It is imperative for combating national security threats ranging from cyber ware to autonomous military systems such as drones.
- Investing in research and providing adequate incentives leads to creation of jobs, especially for the pool of engineers and researchers in the society. Under the 'Make in India' program, the government has targeted to create 100 million jobs from the manufacturing sector by 2022.

Government Efforts:

- Various schemes have been introduced to improve the quality of research institutes, for the promotion of **technology business incubators (Atal Incubation Centres) and research parks** that promote innovative ideas until they become commercial ventures.
- **PM fellowship scheme** aimed at encouraging young, talented, enthusiastic and result-oriented scholars to take up industry-relevant research.
- **Ucchatar Avishkar Yojana:** It aims to promote industry-specific need-based research so as to keep up the competitiveness of the Indian industry in the global market.
- **Atal Tinkering Labs** ensure that dedicated workspaces are created for students to innovate and develop ideas that will go on to transform India.
- Platforms like **"Innovate India"** promote and recognise innovations happening across the nation by enabling citizens to share their innovation.
- **Unnat Bharat Abhiyan 2.0** to help bring transformational change in rural development processes by leveraging knowledge institutions to help build the architecture of an Inclusive India.
- **IMPRINT** India is aimed at adopting engineering and technology as the vehicle to addressing the societal needs and achieving national prosperity
- Forging technology and innovation partnerships with other nations like **India-Israel Innovation Bridge** will act as link between start-ups of India and Israel.
- **PRISM (Promoting Innovations in Individuals, Start-ups and MSMEs):** It is a scheme launched by DSIR (Department of Science & Industrial Research) to support individual innovators with financial grants.



- Various enabling policies like **Science, Technology & Innovation Policy 2013, National Intellectual Property Rights Policy, Technology Vision Document 2035 and Space Vision India 2025** have been framed.

Way forward:

- The Economic Survey recommends doubling national expenditures on R&D with most of the increase coming from the private sector and universities.
- Improve math and cognitive skills at school level
- There is a need to encourage investor-led research. In this direction, the **Science and Engineering Research Board (SERB)** has already been established. It is a promising start that needs to expand with more resources and creative governance structures.
- R & D should focus on technology and extension services that is directly related to common people
- Engage private sector, state government and Indian Diaspora.
- The private sector should be incentivised to undertake and support R&D through **CSR (Corporate Social Responsibility) funds**.
- Growing strength of India's economy and increasing anti-immigrant atmosphere in some Western countries has the potential to attract back scientific Indian Diaspora. Schemes like Ramanujan Fellowship Scheme, the Innovation in Science Pursuit for Inspired Research (INSPIRE) Faculty scheme and the Ramalingaswami Re-entry Fellowship, Visiting Advanced Joint Research Faculty Scheme (VAJRA) should be enhanced to leverage the scientific Diaspora

Topic: Land reforms in India.

Q) What are the major land reforms of India? Why are land reforms needed in Indian economy? Discuss. (250 words)

Indian economy by Dutta and Sundaram

Why this question:

The question seeks to examine the major land reforms in India and their need for the economy.

Key demand of the question:

The answer must discuss the major land reforms in India and their what are their contributions to the Indian economy.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Describe briefly the beginning of land reforms in India.

Body:

First explain what you understand by land reforms – Land reforms in India usually refer to redistribution of land from the rich to the poor. Land reforms are often connected with re-distribution of agricultural land and hence it is related to agrarian reforms too.

Start with a narration of Background and History of Land Reforms in India.

Explain the major land reforms that took place in India.

Its role in Indian economy – Equity – now the majority of land in India is enjoyed by a minority of landlords. The inverse relationship between land size and efficiency – the smaller the land, better will be the productivity and efficiency. Owner-cultivation is more efficient than share-cropping etc.

Then discuss the relevant challenges that need focus.

Conclusion:

Conclude with way forward.

Introduction:

- Land Reforms usually refers to redistribution of Land from rich to poor. Land reforms include **Regulation of Ownership, Operation, Leasing, sale and Inheritance of Land**.
- In an agrarian economy like India with massive inequalities of wealth and income, great scarcity and an unequal distribution of land, coupled with a large mass of people living below the poverty line, there are strong economic and political arguments for land reforms.

**Body:****The major land reforms in India:**

- The process of land reform after independence basically occurred in **two broad phases**.

I. First phase:

- The first phase also called the phase of institutional reforms started soon after independence and continued till the early 1960s focussed on the following features:
- Abolition of intermediaries like zamindars, jagirdars, etc.
- Tenancy reforms involving providing security of tenure to the tenants, decrease in rents and conferment of ownership rights to tenants
- Ceilings on size of landholdings
- Co-operativization and community development programmes.

II. Second phase:

- The second phase beginning around the mid- or late 1960s saw the gradual ushering in of the so-called Green Revolution and has been seen as the phase of technological reforms.
- **Digitisation of land records:**
 - Making land records available to all, to contain/check property frauds, became one of the objectives of the government of India in the late 1980s.
 - To address the same, the Digital India Land Records Modernisation Programme (DILRMP) was launched by the government of India in August 2008.
 - The main aim of the programme, was to computerise all land records, including mutations, improve transparency in the land record maintenance system, digitise maps and surveys, update all settlement records and minimise the scope of land disputes.
 - Digitisation would provide clear titles of land ownership that could be monitored easily by government officials, to facilitate quicker transactions. This will also reduce construction timelines and the overall cost for the developer, the benefits of which can be transferred to the consumer, making property prices more attractive.

Need for the land reforms in India:

- To make redistribution of Land to make a socialistic pattern of society. Such an effort will reduce the inequalities in ownership of land.
- To ensure land ceiling and take away the surplus land to be distributed among the small and marginal farmers.
- To legitimize tenancy with the ceiling limit.
- To register all the tenancy with the village Panchayats.
- To establish relation between tenancy and ceiling.
- To remove rural poverty.
- Proliferating socialist development to lessen social inequality
- Empowerment of women in the traditionally male driven society.
- To increase productivity of agriculture.
- To see that everyone can have a right on a piece of land.
- Protection of tribal by not allowing outsiders to take their land.

Conclusion:

- Land reform is the major step of government to assist people living under adverse conditions. It is basically redistribution of land from those who have excess of land to those who do not possess with the objective of increasing the income and bargaining power of the rural poor.
- The purpose of land reform is to help weaker section of society and do justice in land distribution. Government land policies are implemented to make more rational use of the scarce land resources by affecting conditions of holdings, imposing ceilings and grounds on holdings so that cultivation can be done in the most economical manner.

Q) India is facing a problem of fragmented landholdings at present, with nearly 67% of Indian farmers possessing land holdings below 1 hectare. Under such conditions discuss the need for appropriate land reforms. (250 words)

Indian economy by Dutta and Sundaram

Why this question:

The question is based on the theme of land reforms and in what way they are the need of the hour.

**Key demand of the question:**

The answer must discuss the burning issue of declining land area and the issue of fragmentation.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:**Introduction:**

Begin with facts substantiating prevalent conditions of land fragmentation.

Body:

Discussion should include the following:

- Start by bringing out the challenge of land fragmentation, discuss the reasons, concerns associated with it.
- Explain that the main objective of the land reforms programme is to do away with the existing inequalities in the system of landholding and to increase the agriculture. Thus, explain how land reforms can address the issue of fragmentation.
- Quote examples/case studies to justify better. Suggest cases where land reforms have addressed successfully such situations.

Conclusion:

Conclude that Changing the man-land relations and the man-man relations on land has been a concern for decision-makers and people of a country. Whenever there has been exploitation of landlords or the government's failure to frame the policies, peasants and people's movements targeted the oppressors and policy makers.

Introduction:

- The shrinking size of farms is a major factor responsible for low incomes and farmers distress. The average size of farm holdings declined from 2.3 hectares in 1970-71 to 1.08 hectares in 2015-16. The share of small and marginal farmers increased from 70% in 1980-81 to 86% in 2015-16. The average size of marginal holdings is only 0.38 hectares (less than one acre) in 2015-16. The monthly income of small and marginal farmers from all sources is only around ₹4,000 and ₹5,000 as compared to ₹41,000 for large farmers. The viability of marginal and small farmers is a major challenge for Indian agriculture.

Body:**Need for the land reforms in India:**

- To make redistribution of Land to make a socialistic pattern of society. Such an effort will reduce the inequalities in ownership of land.
- To ensure land ceiling and take away the surplus land to be distributed among the small and marginal farmers.
- To legitimize tenancy with the ceiling limit.
- To register all the tenancy with the village Panchayats.
- To establish relation between tenancy and ceiling.
- To remove rural poverty.
- Proliferating socialist development to lessen social inequality
- Empowerment of women in the traditionally male driven society.
- To increase productivity of agriculture.
- To see that everyone can have a right on a piece of land.
- Protection of tribal by not allowing outsiders to take their land.

Measures needed to achieve the land reforms:

- Land records modernization/computerization- Digital India Land Records Modernisation Programme (DILRMP) has been launched.
- Appropriate land compensation- The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 is meant to provide owners with rightful compensation.
- Land leasing- Model Agricultural Land Leasing Act, 2016 can help in this regard.
- Contract farming- Draft Model Contract Farming Act, 2018 has been released to strengthen rules and regulations regarding this.
- Consolidation of land holdings so that huge machineries can be utilized
- FDI in agricultural sector
- Co-operative farming



- Use of land banks and land pooling

Conclusion:

- Farmer's distress is due to low prices and low productivity. The suggestions, such as limited procurement, measures to improve low productivity, and consolidation of land holdings to gain the benefits of size, can help in reducing agrarian distress.
- The time has come to bring requisite changes in the relevant laws governing the cooperative sector with a view to encourage farmers in the context of changed techno-economic and business scenario to make the farming viable and vibrant enterprises. We need a long-term policy to tackle the situation.

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Q) “Apart from enhancing and improving agricultural productivity, land reforms are key drivers of social equity”. Comment. (250 words)

Reference

Why this question:

The question is straightforward and must discuss the role of land reforms in bringing social equity.

Key demand of the question:

Explain in detail the role of land reforms in enhancing Agri productivity of the country and also in what way they ensure social equity.

Directive:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

Discuss in brief the importance of land reforms.

Body:

Explain what are the effects of land reforms.

How does it bring increased Agri productivity?

What role do land reforms play in bringing social equity? – explain with example. Explain the following aspects –

1. Land equity: Marginalized farmers got ownership over more land area and thus increase in social status.
2. Credit access and increased food production > increase in income > filled the gap of income inequality.
3. Abolition of zamindari curtailed exploitative practices such as beggar, bonded labour.
4. Though land reforms had limited success due to loopholes in law, corruption, these reforms changed the shape of Indian agrarian system. Land reforms are still going on e.g. Benami Act, Computerizations etc.

Conclusion:

Conclude by suggesting importance of land reforms in social equity.

Introduction:

- Land reforms in India usually refer to redistribution of land from the rich to the poor. Land reforms are often connected with re-distribution of agricultural land and hence it is related to agrarian reforms too.
- Land reform legislation in India consisted of four main categories — tenancy reform, abolition of intermediaries, land ceiling, and land consolidation.

Body:

Objectives of land reforms:

- To enhance the productivity of land by improving the economic conditions of farmers and tenants so that they may have the interest to invest in and improve agriculture
- To ensure distributive justice and to create an egalitarian society by eliminating all forms of exploitation
- To create a system of peasant proprietorship with the motto of land to the tiller
- To transfer the incomes of the few too many so that the demand for consumer goods would be created.

Land Reforms and Agricultural Productivity:

- Earlier large tracts of wasteland belonging to zamindars/ big farmers remained uncultivated. These lands were given to landless labourers as a result of which there is increase in area under cultivation leading to food security.
- Equal distribution of land will encourage intensive cultivation resulting in increased agricultural production leading to higher production levels.
- Some farm management studies conducted in India testified that small farms yielded more production per hectare. It is so because family members themselves cultivate small farms.
- Even one hectare of land is also an economic holding these days on account of improvement in agricultural technique. Hence, small size of holding due to ceiling will not have any adverse effect on agricultural production.
- Atleast some of the Land owners shifted to direct ‘efficient’ farming in order to get ‘exemption’ from land ceiling.



- Consolidation of landholdings ensures that small bits of land belonging to the same small landowner but situated at some distance from one another could be consolidated into a single holding to boost viability and productivity.

Land reforms and Social Equity:

- In a land-scarce country with a significant section of the rural population below the poverty line, the case for ensuring that everyone has access to some minimum amount of land seems compelling from the point of
- In a rural economy, whoever controls land, controls the power.
- The tenancy laws have given the tillers protection from exploitation by providing them security of tenure and fixing maximum chargeable rents.
- Land ceiling reduced this power inequality among villagers.
- The intermediary rights have been abolished. India no longer presents a picture of feudalism at the top and serfdom at the bottom.
- Promoted spirit of cooperation among villagers.
- It will help develop cooperative farming

Way forward:

- Adoption of model land leasing law as suggested by Niti Ayog to aid in drawing private investment to agriculture.
- Promoting cooperative farming by establishing cooperatives at village level.
- Governments providing the farm equipment's and machineries on lease to small and marginal farmers to increase the productivity
- Achieving the convergence of MNREGA with farming to address the issue of farm labour crisis haunting agricultural sector.

Conclusion:

- Land reforms have upheld the socialistic directive principles of state policy which aims at equitable distribution of wealth. However, there have been challenges which need to be overcome to attain the true objectives of Land reforms.
- The manifold problems of our land are to be solved through the introduction of a suitable land policy.

Q) Recent studies have established that women undertook 80 per cent of farm work in India though only 13 per cent of the land was owned by them, in the backdrop of the statement discuss the causes for policy paralysis in granting entitlements to women in agriculture and farm widows and how can it be addressed ? (250 words)

[Indianexpress](https://www.indianexpress.com)

Why this question:

Raising the issue during Zero Hour, BJD's Cuttack MP Bhartruhari Mahtab cited an Oxfam report — published a decade ago — which stated that women undertook 80 per cent of farm work in India though only 13 per cent of the land was owned by them.

Key demand of the question:

The answer must analyse the policy paralysis that has led to failure in addressing the entitlement rights to women in agriculture. One has to analyse in detail the issues on ground and suggest how to tackle the issue.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Quote facts showing the scenario of agriculture in India and the gender aspect.

Body:

One has to explain what are the problems with respect to women in Indian farm sector, why is there a policy paralysis in granting entitlements to women in agriculture and farm widows needs to be addressed.

Discuss issues related to tenure security, and most importantly, the chasm between land 'ownership, accessibility to entitlements, and control,' are important challenges affecting the economic



empowerment of women in agriculture. One example here is that of proxy sarpanches or 'sarpanchpatis,' where the control is often vested with the husband of the elected woman representative under the aegis of Panchayati Raj Act (1993).

Suggest what needs to be done.

Conclusion:

Conclude with way forward.

Introduction:

- The Economic survey 2017-18 recognised and spoke of the need for women farmers to get access to land, water, credit, technology and training.
- According to Food and Agriculture Organization, if women farmers had the same access to resources as men, they would increase output by 20-30% which would mean a dramatic reduction in hunger. This could raise total the agricultural output in developing countries by up to 4%.

Body:

Role of women in farming on India

- Swaminathan, the famous agricultural scientist describes that it was woman who first domesticated crop plants and thereby initiated the art and science of farming.
- Over the years, there is a gradual realization of the key role of women in agricultural development and their vital contribution in the field of agriculture, food security, horticulture, processing, nutrition, sericulture, fisheries, and other allied sectors.
- Agriculture in India is significantly dependent on women. Women make up about 33% of cultivators and about 47% of agricultural labourers in rural India. Overall, the percentage of rural women who depend on agriculture for their livelihood is as high as 84%.
- Women have played and continue to play a key role in the conservation of basic life support systems such as land, water, flora and fauna. They have protected the health of the soil through organic recycling and promoted crop security through the maintenance of varietal diversity and genetic resistance.
- The rate of women in poultry farming at household level is the central in poultry industry.
- Women farmers in India perform most of the big farming jobs, from sowing to harvesting, yet their access to resources is less than their male counterparts. Closing this gender gap is essential in order to accelerate the pace of growth in the agriculture sector.
- Maintaining the ancillary branches in this sector, like animal husbandry, fisheries and vegetable cultivation, depends almost solely on women.

Challenges faced:

- **Land ownership issues:**
 - The biggest challenge is the powerlessness of women in terms of claiming ownership of the land they have been cultivating.
 - In Census 2015, almost 86% of women farmers are devoid of this property right in land perhaps on account of the patriarchal set up in our society.
 - Women have just a dismal 12.8% of holdings despite being crucial to the whole production chain from farm to market.
 - Despite a huge presence in farming, women in Uttar Pradesh own a little under 18% of the land, and in Kerala it is just 14%. In other words, women can labour on farms but cannot hope to own them. Since land is passed on through inheritance, it is usually handed down to male heirs.
 - Notably, a lack of ownership of land does not allow women farmers to approach banks for institutional loans as banks usually consider land as collateral.
 - As of now, women farmers have hardly any representation in society and are nowhere discernible in farmer's organisations or in occasional protests. They are the invisible workers without which the agricultural economy is hard to grow.
 - A declining size of land holdings may act as a deterrent due to lower net returns earned and technology adoption.
- **No political will:**
 - Unfortunately, the role of women in farming has got no mention at all among political parties and very little among policy-makers.
 - Not much focus on gender inclusiveness in agriculture.

**Measures needed:**

- Research worldwide shows that women with access to secure land, formal credit and access to market have greater propensity in making investments in improving harvest, increasing productivity, and improving household food security and nutrition.
- Provision of credit without collateral under the micro-finance initiative of the National Bank for Agriculture and Rural Development should be encouraged.
- Better access to credit, technology, and provision of entrepreneurship abilities will further boost women's confidence and help them gain recognition as farmers.
- The possibility of collective farming can be encouraged to make women self-reliant. Training and skills imparted to women as has been done by some self-help groups and cooperative-based dairy activities (Saras in Rajasthan and Amul in Gujarat).
- These can be explored further through farmer producer organisations. Moreover, government flagship schemes such as the National Food Security Mission, Sub-mission on Seed and Planting Material and the Rashtriya Krishi Vikas Yojana must include women-centric strategies and dedicated expenditure.

Way forward:

- Formal education, availability of economically viable agricultural machinery for women, training, extension services, social engineering, and gender budgeting is need of the hour.
- Gender budgeting would assess the quantity and adequacy of allocation of resources for women and establish the extent to which gender commitments are translated into budgetary commitments.
- Agricultural extension efforts should help women improve food production while allowing them to shift more of their labour to export production.
- The government plans to launch an awareness campaign looking at how Agricultural Science Centres (Krishi Vigyan Kendra) can play a significant role in empowering women farmers and shifting existing, biased perceptions of women's roles in agriculture.
- An 'inclusive transformative agricultural policy' should aim at gender-specific intervention to raise productivity of small farm holdings, integrate women as active agents in rural transformation, and engage men and women in extension services with gender expertise.
- Similarly, changes in legal, financial, and educational systems must be undertaken in order to enhance women's social and economic contributions to rural development in the long term.
- There is a need to examine carefully the implications of land tenure laws and regulations for women and educational policies and funding must be changed to reflect the very high social and economic returns to women's primary education and literacy.
- The differential access of women to resources like land, credit, water, seeds and markets needs to be addressed.

Topic: Major crops cropping patterns in various parts of the country, different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers

Q) Agriculture is possibly the most environmentally destructive human activity, high yields coupled with lower greenhouse gas emissions, which GM crops have been proven to provide, are absolutely essential for a sustainable future. Critically analyse. (250 words)

[livemint](#)

Why this question:

The article argues for the benefits that GM crops have for India.

Key demand of the question:

The answer must weigh the pros and cons of GM crops and use of such technology in doubling farmer's income. One must justify in what way using GM crops is more of a boon than bane.

Directive:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.



Structure of the answer:

Introduction:

Describe first the context of question.

Body:

The answer discussion should have the following aspects discussed in detail:

How do GM crops increase yield?

How do GMOs benefit farmers?

Can GMOs improve food security?

What are the roles of GMO in agricultural industry?

Explain if GM Crops Increase Farmer Profits and Environmental Sustainability?

Quote facts and figures from various reports and form a balanced and fair opinion.

Conclusion:

Conclude with a positive note.

Introduction:

- Agrarian distress in India is at its peak with very poor remuneration to farmers leading to increasing farmer suicides, protests and loan waivers. Farmers are now trying to find alternative solutions to their problems including the consideration of debated GM crops.
- Recently, in Maharashtra, the farmers' organisation Shetkari Sanghatana (SS) announced that its members would be planting genetically modified (GM) herbicide-tolerant (HT) Bt cotton. HT Bt cotton is not allowed in India, and growing any GM crop illegally attracts five-year imprisonment and a ₹1 lakh fine.

Body:

Advantages of GM Crops other than pest resistance:

- **Food Security:** Given the increased growth of global population and increased urbanisation, GM crops offer one of the promising solutions to meet the world's food security needs. DMH-11's yield is 25% higher than the best non-GM seeds available in India. However, activists went ballistic and the government has backed off.
- **Improved Stress Tolerance:** Genes that give greater tolerance of stress, such as drought, low temperatures or salt in the soil, can also be inserted into crops. This can extend their range and open up new areas for food production.
- **Faster Growth:** Crops can be altered to make them grow faster, so that they can be cultivated and harvested in areas with shorter growing seasons. This again can extend the range of a food crop into new areas or perhaps allow two harvests in areas where only one is currently practical.
- **More Nutritious Crops:** Plants and animals can be engineered to produce larger amounts of essential vitamins and minerals, such as iron, helping to solve nutrition problems in some parts of the world. They can also be altered to change the amounts of protein, carbohydrates, and saturated and unsaturated fats that they contain. This could lead to the production of foods designed specifically for a healthy diet for all consumers.
- **Resistance to Herbicides:** Crops can be modified to be resistant to specific herbicides, making it much easier to control troublesome weeds. Farmers can simply apply the weed killer to a crop field, killing the unwanted plants and leaving the food crop unaffected. For example, GM oilseed rapeseed – the source of canola oil – is resistant to one chemical that's widely used to control weeds.
- **Economic benefits:** GM crops can increase yield and thus income. Genetically modified foods have a longer shelf life. This improves how long they last and stay fresh during transportation and storage. India imported about ₹80,000 crore worth of edible oils last year, and the bill keeps growing.
- **Case study: Bt Brinjal:** Bt brinjal was approved by the GEAC in 2009 but, under pressure from activists, the government disallowed its planting. Bangladesh, using the same GEAC report, went ahead. Today, about 17% of the country's brinjal farmers grow Bt brinjal, which has reduced pesticide costs for GM crop farmers by 61%. The Bangladeshi Bt brinjal farmer's net returns per hectare are six times his non-Bt counterpart's per year.
- **Environmental Benefits:**
 - In 2017, 189.8 million hectares of biotech crops were planted in 24 countries (and consumed in 67).
 - To achieve the same yield standards, more than 300 million acres of conventional crops would have been needed.
 - According to UK consultancy firm PG Economics, the first 20 years of biotech crops (1996-2016) have seen a reduction of pesticide spraying by 671.2 million kg and the environmental footprint associated with pesticide use by 18.4%.



- The figures for 2016: The drop in release of greenhouse gas emissions was equivalent to removing 16.75 million cars from the roads; the direct global farm income benefit from GM crops was \$18.2 billion, equal to an average increase in income of \$102 per hectare.
- And in these 23 years of GM agriculture, there has not been a single authenticated health hazard case specific to it.

Concerns/Challenges associated with GM Crops:

- **Human Health Risks:**
 - Potential impact on human health including allergens and transfer of antibiotic resistance markers.
 - The impact of growing GM crops poses risks to human health as their resistance to antibiotics can turn medicines ineffective and may result in the formation of new toxins and allergens.
 - Toxins produced by GM crops can not only affect non target organisms but also pose the danger of unintentionally introducing allergens and other anti-nutrition factors in foods.
- **Bio safety concerns:**
 - They can reduce species diversity.
 - For example, Insect-resistant plants might harm insects that are not their intended target and thus result in destruction of that particular species.
 - Cross-pollination in GM crops paves the way for herbicide-resistant super weeds that can further threaten the sustenance of other crops and pests because of its uncontrolled growth
 - GM technology could also allow the transfer of genes from one crop to another, creating “super weeds”, which will be immune to common control methods.
 - Viral genes added to crops to confer resistance might be transferred to other viral pathogens, which can lead to new and more virulent virus strains.
- **Implications on Farmers and Consumers:**
 - Critics claim that patent laws give developers of the GM crops a dangerous degree of control over the food supply. The concern is over domination of world food production by a few companies
 - National Institute of Agricultural Economics and Policy Research’s anticipation that Bt brinjal’s high yield and increased shelf life will benefit consumers and farmers owing to cut in retail price of brinjals ignores the scenario that companies might charge premium prices for Bt brinjal seeds, in which case farmers may not benefit at all.
- **Economic Concerns:**
 - Introduction of a GM crop to market is a lengthy and costly process. It has not resulted in high yields as promised.
 - For instance, the highest yields in mustard are from the five countries which do not grow GM mustard — U.K., France, Poland, Germany and Czech Republic — and not from the GM-growing U.S. or Canada.
- **Inefficient Regulatory system:**
 - Seeing the lapses in the regulatory system and irregularities in the assessment of Bt brinjal (in terms of labelling and unapproved and illegal sowing of GM crops) Parliamentary Standing Committee on Agriculture and the Committee on Science & Technology, Environment and Forests recommended:
 - A thorough probe by a team of eminent independent scientists and environmentalists for commercialization of GM crops.
 - Endorsed labelling GM foods to protect a consumer’s right to know.
- **Ethical Concerns:**
 - Violation of natural organisms’ intrinsic values by mixing among species.
 - There have also been objections to consuming animal genes in plants

Way Forward:

- The government must take decisions on GM technologies on the basis of scientific evidence.
- Need to start cultivating an environment of openness and transparency to allay genuine fears
- The government should adopt a participatory approach to bring together all stakeholders to develop regulatory protocols that restore trust in the process.
- There is a significant uncertainty over their safety, so precautionary principle is that country shall wait till a broader scientific consensus is achieved.
- Need for better policy, pricing and to rationalize the input costs
- GEAC needs to be a transparent body. it should put it in the public domain that on what grounds it has approved GM mustard



- There has to be strong liability laws if there are any environmental hazards or if something goes wrong in future
- Agriculture is a state subject therefore, it is important for the Centre to take into consideration the views of State Governments as well.
- The Food and Agriculture Organization (FAO) has rightly pointed out in 2004, "Science cannot declare any technology completely risk free. Genetically engineered crops can reduce some environmental risks associated with conventional agriculture, but will also introduce new challenges that must be addressed".

Q) Discuss the significance of ICT / E-technology in intensifying the reach of extension services to farmers in the country. (250 words)

Reference

Why this question:

The question is direct and is about discussing the role of ICT in extending services to farmer communities of the country.

Key demand of the question:

Explain in detail role played by E- technology/ICT in aid of farmers.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Begin with brief on what are the ICT/e-technology services available for farmers in the country.

Body:

The application of Information and Communication Technology (ICT) in agriculture is increasingly important. E-Agriculture is an emerging field focusing on the enhancement of agricultural and rural development through improved information and communication processes. More specifically, e-Agriculture involves the conceptualization, design, development, evaluation and application of innovative ways to use information and communication technologies (ICT) in the rural domain, with a primary focus on agriculture. ICT promises a fundamental change in all aspects of our lives, including knowledge dissemination, social interaction, economic and business practices, political engagement, media, education, health, leisure and entertainment.

ICTs are most natural allies to facilitate the outreach of Agricultural Extension system in the country. Despite large, well-educated, well-trained and well-organized Agricultural extension manpower, around 60% of farmers in the country still remain un-reached, not served by any extension agency or functionary.

Conclusion:

Conclude that information per se is not enough, but appropriate communications systems are needed to ensure that information come to farmers in an effective, accurate and clear way.

Introduction:

- Extension and advisory services are relevant to smallholder farmers, who remain the bedrock of the agricultural and food supply chains in India.
- ICTs are very useful in agricultural extension and advisory services and in facilitating reaching out to small and marginal farmers.
- Extension and Advisory services play a crucial role in **promoting agricultural productivity, increasing food security, improving rural livelihoods.**

Body:

- **E-Agriculture** is an emerging field focusing on the enhancement of agricultural and rural development through improved information and communication processes.
- More specifically, e-Agriculture involves the conceptualization, design, development, evaluation and application of innovative ways to use information and communication technologies (ICT) in the rural domain, with a primary focus on agriculture.

Significance of ICT / E-technology in intensifying the reach of extension services to farmers in the country:

- Improve the wellbeing of individuals and communities
- Change production systems so that they improve rural livelihoods and sustain the resource base



- Improve agriculture and the social, economic and political status of rural communities
- Improve the wellbeing of farm families
- Improve productivity and livelihoods for farmers
- Increase and improve farmers' incomes and productivity on a sustainable basis
- Enhance farmers' production
- Attain higher levels of efficiency in the farm enterprise
- Attain food security and improve rural livelihoods.

ICT tools can help in meeting the challenges in agricultural development in the following ways:

- **Land mapping:** Using satellite data and remote sensing, farmers can get real time information about soil moisture, water level etc. Soil quality assessment with help of remote sensing and tools for assessing the feasibility of crops.
- **Soil and Water Testing Laboratories:** These Testing Labs spreads across the country educate the farmers about various scientific tools for identifying superb soil and water for agricultural purposes
- **Land record maintenance:** This can also help in the measurement of the plots, land fragmentation etc.
- **Weather information:** Advanced information about adverse weather condition, so that farmers can take precautionary measures.
- **Credit and finance:** Information regarding agrifinance, agriclincs and agribusiness. Banking facilities like mobile banking, DBT of subsidies can be done easily.
- **Agri-Marketing:** Real time and near real times pricing and market information. E.g.: e-NAM
- It is as a powerful tool when combined with price incentives, input supply, credit, seed multiplication.
- **Agri-Price Support:** Market intervention scheme involving procurement through a notified agency like Commission for Agriculture Costs and Prices, Agricultural & Processed Food Products Export Development Authority (APEDA), and Marketing Research and Information Network (AGMARKNET) etc, can surely be of great help in assuring fair returns to farmers.
- **Advisory services:** Agriculture Information, Awareness and Education.
- **Government Initiatives:** Information dissemination about various government schemes.
- **Discussion portals:** Online Farmer Communities to discuss the trends, issues etc.
- **Allied sector information:** in order to help farmer sustain and increasing income through beekeeping, fishery, animal husbandry. Recently , Mushroom farming on stubble left is being promoted through information dissemination in Punjab
- It acts as an intermediary link between agricultural development institutions such as research institutes, universities, colleges of agriculture and target groups
- The agricultural extension services mainly concentrated on to strengthen the agricultural system by empowering farmers in terms of health, education, livelihood and income.

Key Government initiatives to promote use of ICT in agriculture include **National e-Governance Plan in Agriculture (NeGP-A)**, various **Touch Screen Kiosks**, **Krishi Vigyan Kendras**, **Kisan Call Centres**, **Agri-Clinics**, **Common Service Centers**, **mKisan**, **Kisan TV** and various other applications.

- In India ICT applications such as **Warana**, **Dristee**, **E-Chaupal**, **E-Seva**, **Lokmitra**, **E-Post**, **Gramdoot**, **Dyandoot**, **Tarahaat**, **Dhan**, **Akshaya**, **Honeybee**, **Praja** are quite successful in achieving their objectives.

Conclusion:

- The implementation of rural ICTs involves organizational and social change.
- Information is vital to tackle climate change effects: for this reason, a shift is needed in the agriculture sector to disseminate appropriate knowledge at the right time to the ones who are at the frontline in the battle: the farmers, in both developed and developing countries.

Q) From both economic and environmental perspectives, cultivation of pulses is the most optimal choice.” Explain. (250 words)

Ethics by Lexicon publications

Why this question:

The question is based on the premise of cultivation of pulses and its significance in the current times.

Key demand of the question:

Explain in detail the relevance of cultivation of Pulses to the agrarian system of the country.

**Directive:**

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:**Introduction:**

Discuss the context of the question.

Body:

Explain why pulses are the optimal choice and in what way they are the right choice from the economic and environmental standpoints.

List the benefits of cultivating pulses, Pulses are rich in proteins and found to be main source of protein to vegetarian people of India, can be grown on all types of soil and climatic conditions, being legumes fix atmospheric nitrogen into the soil, helpful for checking the soil erosion as they have more leafy growth and close spacing etc.

Conclusion:

Conclude by how they can act as a shock absorbent for farmers in distress and take care of both environmental and economic aspect.

Introduction:

- Pulses occupy an important place in Indian agriculture. They provide protein and fibre, and are a great source of vitamins and minerals such as iron, zinc and magnesium. In India, pulses are grown over an area of 2.38 crore hectares with a total production of 1.86 crore tonnes.
- The average yield of pulses in India is about 735 kg/hectare. Pulses are generally grown in irrigated as well as rainfed area and belong to **leguminaceae** family. Madhya Pradesh is the leading state in India in pulses, in terms of cultivated area and productivity.

Body:**Environment benefits:**

- Pulse crops are important components of production systems that are resilient to climate change.
- Pulses are able to convert nitrogen in the atmosphere into compounds in the soil. This process is known as nitrogen fixation.
- Some (types) of pulses are also able to free soil-bound phosphorous. Both nitrogen and phosphorus are essential nutrients for growing plants.
- The ability to produce them naturally drastically reduces the need for synthetic fertilizers and pesticides while at the same time improving yields.
- The less fertilizers and pesticides applied, the lower the risk of environmental contamination and unintended effects on the environment.
- Including pulses in intercropping farming systems and cultivating them as cover crops not only reduces the need for synthetic fertilizers, but also helps reduce soil erosion, thus contributing to the creation of healthy soils.
- Healthy soils, are in turn, better able to retain moisture and facilitate the uptake of nutrients by plants.
- Pulses in general need lesser water compared to rice, wheat and sugarcane. This in turn helps in conserving the dwindling ground water resources and help the dry-land farming grow.
- The reduced need for synthetic fertilizers indirectly reduces the level of greenhouse gases released in the atmosphere.
- Fertilizers are energy intensive and a significant source of emissions. At the same time, pulses also promote higher rates of accumulation of soil carbon than cereals or grasses.
- Including pulses in intercropping farming systems and cultivating them as cover crops creates a more diverse environment at the field level.
- This, in turn, supports a broader range of insects and “wildlife” above ground and in the range of bacteria and fungi in the soil.
- The presence of this broader range of insects and microbial life provides for a more resilient “ecosystem” that helps keep harmful insects, diseases and pathogens in check, thus reducing the need (to) use pesticides.
- There are hundreds of different varieties of pulses and only a limited number of these are widely grown.
- It is from this diversity that climate-resilient varieties (which are adaptive) to changes in temperature and have the ability to grown in poor soils or under drought conditions can be derived.



- Since climate experts suggested that heat stress will be the biggest threat to bean production in the coming decades, the improved pulse varieties will be of critical importance, especially for low-input agricultural production systems.

Economic benefits:

- Pulses contribute to food security in a number of ways.
- They represent an important source of food.
- They can be a source of income for the farmer, simply by selling some of what has been produced.
- The possibility of further processing or value addition may be another source of revenue while also generating employment opportunities.
- The crop residues left after harvest may be used to feed livestock, further contributing to a diversified diet and potential source of income.
- Pulses production can help curb the import bill of the country which can be used for other socio-economic development.
- Minimum support price for pulses is expected to help push up their output and thereby contain food inflation

Way forward:

- New research efforts should be initiated to achieve a breakthrough in the productivity.
- Innovative ideas need to be implemented instead of conducting routine research and material evaluation.
- Scientists to work for development of shorter duration, widely adaptable and biotic and abiotic stress resistant varieties to boost the production of pulses.
- Modernization of pulse breeding programme, supporting genetic gains through transgenic technology, enhancing biological nitrogen fixation through development of super nodulating plant types and breeding short duration varieties for achieving self sufficiency in pulses.
- Extension workers and agriculture technology information centers should work more towards development and dissemination of newer technologies.

Conclusion:

- India need to produce 40-50 lakh tonnes of additional pulses for meeting the domestic requirement and this can be possible only if we develop high yielding short duration, drought and insect-pest resistance varieties of pulses.
- The important role that pulses can play in **sustainable crop production systems, in particular through their contribution to improved soil fertility and to agro-biodiversity** along with **providing a balanced and healthy diet as evidenced by their use by the World Food Programme and other food aid initiatives** makes it a naturally optimal choice.

Q) Discuss the key features of Paramparagat Krishi Vikas Yojana (PKVY) and evaluate its contributions in promoting organic farming in India. (250 words)

[Vikaspedia](https://www.insightsias.com/vikaspedia)

Why this question:

The question is about evaluating the scheme of Paramparagat Krishi Vikas Yojana (PKVY).

Key demand of the question:

The answer must discuss the key features, objectives and significant role played by Paramparagat Krishi Vikas Yojana (PKVY) in boosting the organic farming system of the country.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Describe in brief coming of Paramparagat Krishi Vikas Yojana (PKVY).

Body:

The body of the answer should discuss the following aspects:

Explain that Paramparagat Krishi Vikas Yojana is an elaborated component of Soil Health Management (SHM) of major project National Mission of Sustainable Agriculture (NMSA).

Discuss its implementation of the program and in what way it has contributed to organic farming and its development in India.



Conclusion:

Conclude with its importance.

Introduction:

- The Paramparagat Krishi Vikas Yojana (PKVY) – traditional farming improvement programme was launched in 2015. It is an extended component of Soil Health Management (SHM) under the Centrally Sponsored Scheme (CSS), National Mission on Sustainable Agriculture (NMSA).
- PKVY aims at supporting and promoting organic farming, reduction in dependence on fertilizers and agricultural chemicals, in turn, resulting in improvement of the soil health while increasing the yields.
- Organic food, thus produced will be linked with modern marketing tools and local markets. The revamped PKVY promotes organic farming through the adoption of organic village by cluster approach and Participatory Guarantee System of certification.

Body:

Objective of the scheme:

- Promote organic farming among rural youth, farmers, consumers and traders.
- Disseminate latest technologies in organic farming.
- To utilise the services of experts from the public agricultural research system in India.
- Organise a minimum of one cluster demonstration in a village.

Contributions of PKVY to organic farming promotion:

- Groups of farmers would be motivated to take up organic farming under Paramparagat Krishi Vikas Yojana (PKVY).
- Fifty or more farmers will form a cluster having 50 acre land to take up the organic farming under the scheme.
- In this way during three years 10,000 clusters will be formed covering 5.0 lakh acre area under organic farming.
- There will be no liability on the farmers for expenditure on certification.
- Every farmer will be provided Rs. 20,000 per acre in three years for seed to harvesting of crops and to transport produce to the market.
- The produce will be pesticide residue free and will contribute to improving the health of the consumer.
- Organic farming will be promoted by using traditional resources and the organic products will be linked with the market.
- It will increase domestic production and certification of organic produce by involving farmers
- Adoption of Participatory Guarantee System (PGS) certification through cluster approach
- Adoption of organic village for manure management and biological nitrogen harvesting through cluster approach

However, challenges remain:

- The Centre's free organic certification programme "the Paramparagat Krishi Vikas Yojana" has not picked up as most States have failed to utilise the funds set aside for the scheme.
- A 2018 report on the implementation of PKVY highlights that all states, except Tripura, Odisha and Karnataka, have failed to utilise even 50 per cent of their funds under the scheme.
- While the Centre has increased allocation for the scheme by 44 per cent for the current year, corrective measures are needed to ensure that the states become responsible and contribute toward "organic India".

Conclusion:

- With the increase in global health consciousness, organic food is set to knock every door and make its way in healthy kitchens worldwide. People the world over use organic food as a hygiene factor rather than a product by itself.
- Organic food is a holistic approach in the Indian environment which starts at the farm and ends at the fork of the consumer. The way forward is to support the change in a gradual manner. A holistic and community-driven approach, similar to the "Swachh Bharat" for "Swachh Food" needs to be undertaken.

Q) Explain the different types of agriculture revolutions that took place post Independence in India. Also explain how these revolutions have helped in bringing food security in India ? (250 words)

Indian geography by Majid Hussain, Indian economy by Dutt and Sundaram

Why this question:

The question is straight forward and is about discussing the agrarian revolutions that India witnessed post-independence.



Key demand of the question:

The answer must discuss the contributions of Agrarian revolutions in India and role played by them in ensuring food security in India.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Begin with brief on significance of important agrarian revolutions in India that started immediately after post-independence.

Body:

Discussion should include the following:

- India is primarily an agricultural economy and majority of people are still dependent on agriculture for their livelihood. After independence, development of agriculture has been assured by various revolutions supported by government.
- Green Revolution – This revolution led to tremendous rise in production of food grains, especially wheat, by use of high-yielding varieties of seeds, fertilizers and pesticide.
- White Revolution – Operation Flood (1970), an initiative of National Dairy Development Board has led to revolution in milk production in India. The world's largest dairy development programme transformed India from a milk deficient nation to world's largest milk producer.
- Blue Revolution – This revolution focused on management of fisheries sector and has led to phenomenal increase in both fish production and productivity from aquaculture and fisheries resources of the inland and marine fisheries.
- Other revolutions which are no less significant includes yellow revolution (oil seed production), golden fibre revolution (jute), golden revolution (horticulture), silver fibre revolution (Cotton) and red revolution (meat production).
- Then suggest their contributions/significance. And conclude that To further the momentum of these programmes and assure food security in long run in face of ever increasing population, there is an urgent need for an 'evergreen revolution' that should focus on all round development of the agriculture sector.

Conclusion:

Conclude with way forward.

Introduction:

- India is primarily an agricultural economy and majority of people are still dependent on agriculture for their livelihood. After independence, development of agriculture has been assured by various revolutions supported by government.
- The Agricultural Revolution or Agrarian Revolution refers to the significant change in agriculture that occurs when there are discoveries, inventions, or new technologies that changes the production.

Body:

| Revolutions | Contributions/significance |
|------------------|---|
| Green Revolution | <p>It stands for a major technological breakthrough in India based on:</p> <ol style="list-style-type: none"> 1. Improved seeds of high yielding varieties 2. Adequate and assured supply of water for irrigation 3. Increased and appropriate application of chemical fertilizers for increasing agricultural production. |
| White Revolution | <p>It stands for remarkable increase in milk production and establishment of a national milk grid, removing regional and seasonal imbalances. Among the technological inputs are:</p> <ol style="list-style-type: none"> 1. Cross-breeding of indigenous cows with high milk yielding European breed 2. Pasteurisation of milk for keeping it for a longer duration 3. Collection of quality milk from members in rural areas 4. Refrigerated transport system which helps sending milk to far-off metropolitan centres both by road and rail |



| | |
|-------------------------|--|
| Blue revolution | It refers to big rise in catching of freshwater and marine fish. |
| Golden Revolution | Overall Horticulture development/Honey Production |
| Pink Revolution | It is a term used to denote the technological changes in the meat and poultry processing sector. |
| Yellow Revolution | It refers to remarkably steady and assured supply of Oil Seeds production. |
| Red Revolution | Meat and Tomato Production |
| Silver Fibre Revolution | Cotton Revolution |

Agricultural Revolution and Food Security:

- These innovations in agriculture have lifted millions of people out of poverty by generating rural income opportunities for farmers, farm labourers, and also reduced prices for consumers. India has become self sufficient in food grain production with the help of green revolution.
- The exponential rise in milk production has led to nutritional security among the masses. Per capita availability of milk has reached all time high of 337gms/day.
- These steps have provided avenues for income diversification for farmers.

Conclusion:

- To further carry on the momentum of these programmes and assure food security in long run in face of ever increasing population, there is an urgent need for an 'evergreen revolution' that should focus on all round development of the agriculture sector.
- The concept of Rainbow revolution is an integrated development of crop cultivation, horticulture, forestry, fishery, poultry, animal husbandry and food processing industry is the need of the hour.

Q) What do you understand by Cooperative farming? How does it contribute to Land reforms? Discuss its limitations and analyse why cooperative farming model has not been very successful in the country. (250 words)

[epw](#)

Why this question:

The question intends to analyse the practice of co-operative farming and its contributions to land reforms.

Key demand of the question:

The answer must first discuss the concept of co-operative farming and then discuss its contributions to land reforms and analyse the limitations and challenges associated.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Begin with brief introduction on what you understand by co-operative farming.

Body:

Discussion should include the following:

Explain that co-operative farming is the practice of pooling of land and practicing joint agriculture.

Discuss its contribution to land reforms, quote examples, success stories where co-operative farming has acted as a game changer.

Explain the limitations/challenges encountered in inculcating the features of the co-operative farming. Then discuss in what way it can be addressed to make it a success story.

Conclusion:

Conclude with way forward.

Introduction:

- Co-operative farming is a voluntary organization in which the farmers pool their resources. The object of this organization is to help each other in agriculture for their common interests.
- In other word it is a co-operative among the farmers of limited means.

**Body:****Co-operative farming and land reforms:**

- In India, majority of the holdings are too small. About 76.4 per cent of the total holdings in India are below the size of 2 hectares and on these again 28.8 per cent of total operated area is engaged into these marginal and small holdings.
- Cultivation in such a small holding is uneconomic and unprofitable.
- Farmers retain their right to land.
- Cooperative farming enables them to consolidate their small units of land for better utilization.
- Solves the problem of sub-division and fragmentation of holdings.

Other benefits:

- **Use of Machinery:** A poor farmer cannot purchase the machinery but a cooperative society can easily purchase the various machines. The use of machines will not only reduce the cost of production but will increase the per acre yield.
- **Supply of Inputs:** A cooperative farming is in a better position to get the adequate and timely supply of essential agriculture inputs like fertilizer and seeds.
- **Creates Love and Brotherhood:** A cooperative farming society creates the brotherhood and love for the members because they work for their common interest.
- **Fair Price of the Product:** A co-operative farming society will bargain in the market and will sell the product at maximum price. The income of the individual farmer will increase.
- **Guidance and Training:** A co-operative society guides the farmer to increase their efficiency and production.

Causes of failure of cooperative farming:

- **Attachment with Land:** The farmers are not willing to surrender the rights of land in favour of the society because they have too much attachment with it.
- **Lack of Cooperative Spirit:** The spirit of cooperation and love is lacking among farmers. They are divided in various sections on cast basis. There is no unity among them, so they are not ready to become the member of the society.
- **Illiteracy:** In poor countries farmers are mostly illiterate and they are not ready accept any change in the cultivation process. Still some of them are using the old methods of cultivation.
- **Lack of Capital:** The co-operative farming societies are also facing the capital shortage problem and these are unable to meet the growing needs of agriculture. Credit facilities to these societies are also not sufficient.
- **Dishonesty:** The management of cooperative often turns out to be dishonest. The selfishness of the members make the cooperative farming society ineffective.
- **Loss of Independence:** Under co-operative farming, farmers face loss of independence in their farming operation which the farmers find it difficult to accept.
- **Re-Payment of Debt:** Sometimes debt is not repaid in time which creates many problems for the financial institutions. Some members do not realize their responsibility and it becomes the cause of failure.

Measures needed:

- The government must invest capital so that the cooperatives become capable to shoulder the responsibility of guaranteeing purchase of crops at remunerative prices, it's storage at Gram Sabha level, ensuring cheaper loans for rural families, providing food grains to poor families under PDS .
- **Kudumbashree of Kerala and AMUL model** are successful models of cooperatisation and there is need to learn from it.
- One must keep in mind the class character of cooperatives and they must be formed on class basis. Cooperative agrarian movement will resolve the questions of caste inequality, sex-based discrimination and environmental conservation.
- Agro-processing units may be installed so that their labour power may be deployed in productive activities other than agriculture.

Conclusion:

- The cooperative farming has been tried successfully in various countries like United Kingdom, Germany, France and Sweden. The agricultural cooperative movement would play a huge role in safeguarding democracy and it may play an inspirational role in mobilising the people in unorganized sector and the youth.



Q) Discuss the role and contributions from agriculture towards India's goal of \$5 trillion economy. What measures need to be taken in agriculture to reach its goal. (250 words)

The hindu

Introduction:

- The President of India spoke of India becoming a "Five Trillion Dollar" economy, last month. It was reiterated by the Prime Minister and was even discussed in the NITI Aayog Governing Council meet.
- India is, currently, a \$2.8 trillion economy; to reach the \$5 trillion mark by 2024, the economy would require nominal growth in dollar terms of over 12% a year. To reach \$ 5 Trillion, we need to shift our perspective from policy to projects.
- However, unless there are adequate investments reforms in primary sectors, steps taken to augment growth in other sectors would be futile.

Body:

Role and contributions from agriculture towards India's goal of \$5 trillion economy:

- **Agri-tourism:** The segments such as agro-processing, and exports, agri-startups and agri-tourism, where the potential for job creation and capacity utilisation is far less. Integrating the existing tourism circuit with a relatively new area of agri-tourism (as a hub-and-spoke model), where glimpses of farm staff and farm operations are displayed to attract tourists, would help in boosting the investment cycle and generate in-situ employment.
- **Education and research in agriculture:** It would serve as a stage to demonstrate resource conservation and sustainable use through organic, natural and green methods, and also zero budget natural farming.
- **Food processing:** according to united nations food and agriculture organisation (FAO), India is home to more than 190 million Indians going hunger daily and at the same time around \$ 14 billion (Rs 96,000 crore) food wastage in India due to lack of proper food storage facilities.
- **Live stock:** In India livestock considered as a supplement to farm income to farmer. But at present day livestock contribution to agriculture GDP is nearly 30%. And many of the livestock farmers earning more than traditional agriculture farmers. India is home to highest number of livestock population in the world, investment should make to utilise this surplus.
- **Foreign direct investment:** according to Invest India report, around 1.5 billion USD foreign investment came to food processing sector. So there is a huge potential to tap in Indian food processing industry.
- **Renewable energy:** investment in renewable energy generation on fallow farmland and in hilly terrain would help reduce the burden of debt-ridden electricity distribution companies and state governments and farmers no need to rely on Discom companies for power supply.
- **Private entities:** Farm business organisation is another source of routing private investment to agriculture. Linking these organisations with commodity exchanges would provide agriculture commodities more space on international trading platforms and reduce the burden of markets in a glut season, with certain policy/procedural modifications.

Global Experiences:

- An earlier experience of BRIC (Brazil, Russia, India and China) nations has shown that a 1% growth in agriculture is at least two to three times more effective in reducing poverty than similar growth in non-agricultural sectors.
- Public investment in agriculture research and development in terms of percentage share in agri GVA stands at 0.37%, which is fairly low in comparison to between 3% and 5% in developed countries.

Measures needed:

- Encouraging public and private investments to develop infrastructure like cold chains;
- Special attention for north-eastern, eastern and rain-fed states for augmenting scope of access to institutional credit;
- Rationalisation and targeting of input subsidies towards small and marginal farmers.
- Reform in land leasing laws to promote land consolidation and contract farming.
- Accelerating the pace of public investment in agriculture and ensure greater efficiency in capital use.
- Loans available through KCC are very low, so the government and RBI should work together to increase the loan amount.
- PPPs could help spur the development of the food processing industry, one of the newest sectors in Indian agriculture.



- present agriculture growth is in declining phase, to revive the agriculture growth need patient capital (as financial returns to investment are unlikely to materialize in the initial years.) like rural infrastructure development fund (RIDF)

Conclusion:

- Agriculture and its allied sectors are believed to be one of the most fertile grounds to help achieve the ambitious Sustainable Developmental Goals (SDGs). However, with the current pace of agriculture growth, India requires 'patient capital', as financial returns to investment are unlikely to materialise in the initial years.
- An inclusive business model facilitating strong investor-farmer relations should be created, with a legal and institutional framework for governance. Expanding institutions is essential to accommodate the developmental impacts of foreign agricultural investment.

Q) Practice of Information, technology and communication in agriculture can achieve the triad of empowerment, enablement and expansion. Comment. (250 words)

Indian economy by Dutta and Sundaram

Why this question:

From the perspective of socio-economic and sustainability of the agricultural system, Information can be a valuable tool, in a sense that it's immaterial, so if we harness the information technology, we can produce more food with less input.

Key demand of the question:

The answer must bring out the significance of ICT in agriculture.

Directive:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

Body:

The relevance of ICT for Agricultural Development in general and for Agricultural empowerment and enablement in particular is extremely high for a country like India. E-agriculture involves the conceptualization, design, development, evaluation and application of innovative ways to use information and communication technologies in the rural domain, with a primary focus on agriculture.

Conclusion:

Technological empowerment is essential for evergreen revolution and E-agriculture has the potential to put India on the higher pedestal of 'Second Green Revolution' by making Indian agricultural sector self-sufficient. However, digital agricultural interventions need to be pro-poor i.e. technology should be economical and affordable in adoption and implementation.

Introduction:

- Information and Communication Technology (ICT) is used as an overarching term incorporating all modes of transmission like electronic devices, networks, mobiles, services and applications which help to disseminate information with the help of technology.
- In the recent years, ICT has proved to be extremely beneficial for farmers including small land holders, marginalized and poor farmers, and helped them in marketing, precision farming and improved profits.

Body:

Role of ICT in Agriculture:

In the context of agriculture, the potential of information technology (IT) can be assessed broadly under two heads:

- as a **tool for direct contribution to agricultural productivity**
- As an **indirect tool for empowering farmers to take informed and quality decisions which will have positive impact on the way agriculture and allied activities are conducted.**

Direct benefits:

- **Precision farming**, popular in developed countries, extensively uses ICT to make direct contribution to agricultural productivity. The techniques of remote sensing using **satellite technologies, geographical information systems, agronomy and soil sciences** are used to increase the agricultural output.



- This approach is capital intensive and useful where large tracts of land are involved. Consequently it is more suitable for farming taken up on corporate lines.

The indirect benefits of ICT

- It empowers Indian farmer in significant way and remains to be exploited. The Indian farmer urgently requires timely and reliable sources of information inputs for taking decisions.
- Access to technology is one of the most important enablers for smallholders to improve productivity sustainably. Innovative mechanisms for technology transfer are required to bring relevant tools, knowledge and knowhow to farmers.
- Market linkages are common weak points between the smallholders and formal supply chains. Intermediaries are required not only to aggregate production from small-scale growers, but also to provide support and services to ensure the quality and consistency of production.
- ICT applications can foster **dissemination of information on technology, market demand and price information; weather, pest, and risk-management information, best practices to meet quality and certification standards.**
- To bridge the information gap between the farmers and to build productive and competitive market, different ICT interventions support rural and under-developed markets to become efficient and productive.
- The rapid changes in the field of information technology make it possible to develop and disseminate required electronic services to rural India. The existing bottlenecks in undertaking the tasks need to be addressed immediately.

Challenges in spread of e-technology to farmers:

Mobile Connectivity:

- Even the masses have access to mobile connectivity, but the potential of the handsets are not yet tapped. This is largely because of the content delivered is often not directly related to their livelihood and environment. Since they need localised news and information directly delivered in their language to meet their daily needs.
- Affordability is a key issue for many potential users. Not everyone can afford handsets; innovative business models adopted by the firms and handsets at low price tag which work for voice and sms based services.
- Other challenge in disseminating agriculture related information is dynamic nature of information. Farming is not so linear but requires constant inputs at every stage where new technological inputs provide better crop outputs.

Internet Connectivity:

- **Haphazard development:**
 - It is observed that some initiatives have already been made to provide IT based services to farmers. However, duplication of efforts are witnessed as most of the services revolve around limited subjects.
 - Keeping in view the giant task involved, it is necessary to form a coordination mechanism to strive for a concerted effort to support farming community in the country. Such a coordination agency may only have advisory powers.
- **User friendliness:**
 - The success of the strategy depends on the ease with which rural population can use the content.
 - This will require easy language, training to farmers and intuitive graphics based presentation.
- **Local languages:**
 - Regional language fonts and mechanisms for synchronisation of the content provides a challenge that needs to be met with careful planning
- **Restrictions:**
 - Information content based on remote sensing and geographical information systems can provide timely alerts to the farmers and also improve the efficiency of administration.
- **Power Supply:**
 - In most of the rural India, power supply is not available for long hours. This will reduce the usefulness of the intended services.
 - Since almost entire country receives sunshine for most part of the year, it is useful to explore solar power packs for UPS as well as for supply of power.
- **Connectivity:**
 - Despite the phenomenal progress made in the recent years, the connectivity to rural areas still requires to be improved.
 - Reliable connectivity is a prerequisite for a successful penetration of IT into rural areas.



In India ICT applications such as **Warana, Dristee, E-Chaupal, E-Seva, Lokmitra, E-Post, Gramdoot, Dyandoot, Tarahaat, Dhan, Akshaya, Honeybee, Praja** are quite successful in achieving their objectives

Conclusion:

- The use of ICT in agriculture has grown rapidly in the past few years. It is increasingly being used to help managers make better decisions. However, IT and the problem facing decision makers are constantly changing.
- Thus, future information systems for research purposes will be significantly different than current systems because of these changes. IT has been one of the most aspired fields in today's world. Integrating IT with agriculture will help any country to regulate its overall economy and trade.

Topic: Issues related to direct and indirect farm subsidies and minimum support prices; Public Distribution System- objectives, functioning, limitations, revamping; issues of buffer stocks and food security; Technology missions; economics of animal-rearing.

Q) The progress in livestock sector of the country is directly related to a more balanced development of rural economy and upliftment of poorer sections of the society. Comment. (250 words)

Reference

Why this question:

The question is straightforward and is about analysing the role of livestock sector on the rural economy.

Key demand of the question:

The answer must relate the growth of livestock sector and the impact it has on rural economy and life.

Directive:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

Begin with brief introduction on current status of livestock sector in India.

Body:

Explain that Animal Husbandry Sector plays a vital role in providing household nutritional security, increased income, and employment especially of women and in rural transformation. Animals provide a diverse range of output for cultivation, irrigation, transport; fibre and leather goods, manure for fertilizer and fuel besides direct production of milk, meat and eggs for human consumption. Livestock provide economic security and social status to the family. Thus, progress in livestock sector is directly related to a more balanced development of rural economy and upliftment of poorer sections of the society.

Conclusion:

Conclude with importance of livestock, its significant contribution to the agricultural GDP.

Introduction:

- India's livestock sector is one of the largest in the world. About 20.5 million people depend upon livestock for their livelihood. Livestock contributed 16% to the income of small farm households as against an average of 14% for all rural households. Livestock provides livelihood to two-third of rural community.
- It also provides employment to about 8.8 % of the population in India. India has vast livestock resources. Livestock sector contributes 4.11% GDP and 25.6% of total Agriculture GDP.

Body:

Livestock resources in India: (Source: 19th Livestock Census)

- World's highest livestock owner at about 512.05 million
- First in the total buffalo population in the world – 105.3 million buffaloes
- Second in the population of cattle and goats – 140.5 million goats
- Second largest poultry market in the world – production of 63 billion eggs and 649 million poultry meat.
- Third in the population of sheep (72 millions)
- Fifth in the population of ducks and chicken
- Tenth in camel population in the world.



Role of livestock in farmers' economy

The livestock plays an important role in the economy of farmers. The farmers in India maintain mixed farming system i.e. a combination of crop and livestock where the output of one enterprise becomes the input of another enterprise thereby realize the resource efficiency. The livestock serve the farmers in different ways.

- **Income:** Livestock is a source of subsidiary income for many families in India especially the resource poor who maintain few heads of animals. Cows and buffaloes if in milk will provide regular income to the livestock farmers through sale of milk. Animals like sheep and goat serve as sources of income during emergencies to meet exigencies like marriages, treatment of sick persons, children education, repair of houses etc. The animals also serve as moving banks and assets which provide economic security to the owners.
- **Employment:** A large number of people in India being less literate and unskilled depend upon agriculture for their livelihoods. But agriculture being seasonal in nature could provide employment for a maximum of 180 days in a year. The land less and less land people depend upon livestock for utilizing their labour during lean agricultural season.
- **Food:** The livestock products such as milk, meat and eggs are an important source of animal protein to the members of the livestock owners. The per capita availability of milk is around 355 g / day; eggs is 69 / annum;
- **Social security:** The animals offer social security to the owners in terms of their status in the society. The families especially the landless which own animals are better placed than those who do not. Gifting of animals during marriages is a very common phenomenon in different parts of the country. Rearing of animals is a part of the Indian culture. Animals are used for various socio religious functions. Cows for house warming ceremonies; rams, bucks and chicken for sacrifice during festive seasons; Bulls and Cows are worshipped during various religious functions. Many owners develop attachment to their animals.
- **Gender equity:** Animal husbandry promotes gender equity. More than three-fourth of the labour demand in livestock production is met by women. The share of women employment in livestock sector is around 90% in Punjab and Haryana where dairying is a prominent activity and animals are stall-fed.
- **Draft:** The bullocks are the back bone of Indian agriculture. The farmers especially the marginal and small depend upon bullocks for ploughing, carting and transport of both inputs and outputs.
- **Dung:** In rural areas dung is used for several purposes which include fuel (dung cakes), fertilizer (farm yard manure), and plastering material (poor man's cement).

Challenges faced by Livestock sector in India:

- **Productivity:**
 - Improving productivity of farm animals is one of the major challenges. The average annual milk yield of Indian cattle is 1172 kg which is only about 50% of the global average.
- **Diseases:**
 - The Frequent outbreaks of diseases like Food and Mouth Diseases, Black Quarter infection, Influenza etc. continue to affect Livestock health and lower the productivity.
- **Environment:**
 - India's huge population of ruminants contributes to greenhouse gases emission adding to global warming. Reducing greenhouse gases through mitigation and adaptation strategies will be a major challenge.
- **Crossbreeding of indigenous species** with exotic stocks to enhance genetic potential of different species has been successful only to a limited extent.
- **Limited Artificial Insemination services** owing to a deficiency in quality germplasm, infrastructure and technical manpower coupled with poor conception rate following artificial insemination have been the major impediments.
- Livestock sector did not receive the policy and financial attention it deserved. The sector received only about 12% of the total public expenditure on agriculture and allied sectors, which is disproportionately lesser than its contribution to agricultural GDP.
- The sector has been neglected by the financial institutions.
 - The share of livestock in the total agricultural credit has hardly ever exceeded 4% in the total (short-term, medium-term and long-term). The institutional mechanisms to protect animals against risk are not strong enough.
- **Insurance:**
 - Currently, only 6% of the animal heads (excluding poultry) are provided insurance cover. Livestock extension has remained grossly neglected in the past.



- Only about 5% of the farm households in India access information on livestock technology. These indicate an apathetic outreach of the financial and information delivery systems.
- Livestock derives a major part of their energy requirement from agricultural by-products and residues. Hardly 5% of the cropped area is utilized to grow fodder. India is deficit in dry fodder by 11%, green fodder by 35% and concentrates feed by 28%. The common grazing lands too have been deteriorating quantitatively and qualitatively.
- **Lack of access to markets** may act as a disincentive to farmers to adopt improved technologies and quality inputs.
- Except for poultry products and to some extent for milk, markets for livestock and livestock products are underdeveloped, irregular, uncertain and lack transparency. Further, these are often dominated by informal market intermediaries who exploit the producers.
- Likewise, **slaughtering facilities are too inadequate**. About half of the total meat production comes from un-registered, make-shift slaughterhouses. Marketing and transaction costs of livestock products are high taking 15-20% of the sale price.

Way forward

- A national breeding policy is needed to upgrade the best performing indigenous breeds.
- Buffalo breeding ought to be given more attention, while poultry breeding should be focused on conservation.
- State governments should be encouraged to participate in national breeding policy implementation. Geographical information system-based analysis must be utilised to map production systems.
- Animal health care should become a priority, with greater investment in preventive health care.
- Private investment must also be encouraged. The government needs to create better incentive structures for investment in livestock.
- State governments should sponsor research and assessment of the market, along with highlighting investment potential.

Conclusion:

- With increasing population, persistent rise in food inflation, unfortunate rise in farmer's suicide and majority of the Indian population having agriculture as the primary occupation, the practice of animal husbandry is no more a choice, but a need in contemporary scenario. Its successful, sustainable and skilful implementation will go a long way in ameliorating the socio-economic condition of lower strata of our society.
- Linking the animal husbandry with food processing industry, agriculture, researches & patents has all the possible potential to make India a nutritional power house of the world. Animal husbandry is the imperative hope, definite desire and urgent panacea for India as well as the world.

Q) Discuss the importance of Public Distribution System in India and also explain the challenges involved and what reforms are required to overcome these challenges. (250 words)

Reference

Why this question:

The question is about PDS – its importance, challenges and reforms required.

Key demand of the question:

The answer must discuss the significance of the PDS system for India and the challenges facing the system and suggest necessary reforms.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments

Structure of the answer:

Introduction:

Define what you understand by PDS.

Body:

Explain that the Public Distribution System (PDS) evolved as a system for distribution of food grains at affordable prices and management of emergency situations. Over the years, the term PDS has become synonymous with the term 'food security' and also an important part of Government's policy for management of food economy in the country.



Then move on to explain the growing significance of PDS, why is it so important with the aspect of food security.

Discuss the challenges associated and suggest what measures/reforms can be taken to make the PDS a success.

Conclusion:

Conclude by reasserting the need to have a robust PDS in place to ensure food secure and healthy India.

Introduction:

- The **Public Distribution System (PDS)** is an Indian food security system which evolved as a system for distribution of food grains at affordable prices and management of emergency situations.
- It distributes subsidized food and non-food items to India's poor. This scheme was launched in June 1947. It functions through a network of Fair Price Shops at a subsidized price on a recurring basis.

Body:

Importance of PDS:

- Food grains to the poor, at prices lower than the price of food grains at private shops.
- Food grains are directly purchased from farmers, assuring farmers with a greater price.
- Make goods available to consumers, especially the disadvantaged /vulnerable sections of society at fair prices.
- Rectify the existing imbalances between the supply and demand for consumer goods. Check and prevent hoarding and black marketing in essential commodities.
- Ensure social justice in distribution of basic necessities of life.
- Even out fluctuations in prices and availability of mass consumption goods.
- Support poverty-alleviation programmes, particularly, rural employment programmes, (SGRY/SGSY/IRDP/ Mid-day meals, ICDS, DWCRA, SHGs and Food for Work and educational feeding programmes.

Challenges faced by PDS:

Procurement:

- Open-ended Procurement: All incoming grains accepted even if buffer stock is filled creating a shortage in the open market.
- The recent implementation of Nation food security act would only increase the quantum of procurement resulting in higher prices for grains.
- The gap between required and existing storage capacity.
- The provision of minimum support price has encouraged farmers to divert land from production of coarse grains that are consumed by poor, to rice and wheat.

Storage:

- Inadequate storage capacity with FCI.
- Food grains rotting or damaging on the CAP or Cover & Plinth storage.
- The storage of foodgrains inculcates high carrying costs on the government.

Allocation of food grains:

- Identification of poor by the states is not fool proof. A large number of poor and needy persons are left out and a lot of fake cards are also issued.
- Illicit Fair Price shops: The shop owners have created a large number of bogus cards or ghost cards(cards for nonexistent people) to sell food grains in the open market.

Transportation:

- Leakage and diversion of food grains during transportation.
- Uneven distribution of Food generations, procurement and distribution. For example: north eastern states are very far from Punjab and Haryana, from where wheat is procured. To transport food grains from Punjab to far flung areas in North east will entail cost and time both.

Other issues:

- Many times, good quality food grains are replaced with poor quality cheap food grains.
- Public distribution system includes only few food grains such as wheat and rice, it does not fulfil the requirement of complete nutrition.
- Fair Price Shop owner gets fake Ration cards and sell the food grains in the open market.

PDS Reforms undertaken by Government:

- **Aadhaar Linked and digitized ration cards:** This allows online entry and verification of beneficiary data. It also enables online tracking of monthly entitlements and off-take of foodgrains by beneficiaries.



- **Computerized Fair Price Shops:** FPS automated by installing 'Point of Sale' device to swap the ration card. It authenticates the beneficiaries and records the quantity of subsidized grains given to a family.
- **DBT:** Under the Direct Benefit Transfer scheme, cash is transferred to the beneficiaries' account in lieu of foodgrains subsidy component. They will be free to buy food grains from anywhere in the market. For taking up this model, pre-requisites for the States/UTs would be to complete digitization of beneficiary data and seed Aadhaar and bank account details of beneficiaries. It is estimated that cash transfers alone could save the exchequer Rs.30,000 crore every year.
- **Use of GPS technology:** Use of Global Positioning System (GPS) technology to track the movement of trucks carrying foodgrains from state depots to FPS which can help to prevent diversion.
- **SMS-based monitoring:** Allows monitoring by citizens so they can register their mobile numbers and send/receive SMS alerts during dispatch and arrival of TPDS commodities
- **Use of web-based citizens' portal:** Public Grievance Redressal Machineries, such as a toll-free number for call centers to register complaints or suggestions.

Way forward:

- Primacy should be given to ensuring that the functioning of FCI is streamlined and fast paced as per recommendations of the Shanta Kumar Committee.
- 100 lakh ton silo storage capacity must be created in the country. For this, RITES has been assigned the task of changing the silo model and they will give their recommendations in 90 days to FCI.
- At present, there are 3 types of labourers in FCI namely Departmental, Daily Payment System (DPS) and No work no pay workers along with contractual labour. Government of India is deliberating to finish the 3 different arrangements and bring all workers of FCI under a single, uniform system which will bring stability of tenure and secured wages for all.
- To improve the usage of Information Technology in FCI, a Human Resource Management System (HRMS) must be implemented.

Conclusion:

- PDS has helped bring about the socio-economic justice by helping alleviate hunger, malnutrition, anaemia among poorest of the poor, BPL citizens, women and children. The use of ICT to reduce the touch-points will further increase the efficiency of PDS.

Q) Discuss the effects of livestock farming on environment. (250 words)

Indian Geography by Majid Hussain

Why this question:

The question is direct and is about discussing the effects of livestock farming on environment.

Key demand of the question:

The answer must discuss the pros and cons of livestock farming on the environment.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments

Structure of the answer:

Introduction:

Describe basics of livestock farming.

Body:

Explain in detail the equation between livestock farming and global warming

The conversion of forests into agricultural land and livestock ranches is one of the major causes of deforestation. It is being done to meet the rising demand for food. One to two acres of rainforests are cleared every second for animal rearing and agriculture. Another major concern is greenhouse gas emissions. Raising livestock generates 14.5 per cent of global greenhouse gas emissions that are very bad for the environment. Forests help lower the risks of sudden climate change and also tone down the impacts from natural disasters.

Discuss both pros and cons and conclude with what needs to be done to overcome the challenge.

Conclusion:

Suggest how the impact can be mitigated or reduces what can be other alternatives.

**Introduction:**

- Livestock is used for meat, dairy products, eggs, fibre and leather, transport, and for manure to fertilize crops and for fuel. According to FAO 2006, the livestock sector accounts for 40 % of the world's agriculture-related gross domestic product (GDP).
- It employs 1.3 billion people and provides livelihoods for around 1 billion of the world's population living in poverty. However, it is also a major driver of climate change through the emissions of greenhouse gases such as carbon dioxide, CH₄, and nitrous oxide.

Body:**Effects of livestock farming on environment:**

- Globally, the livestock sector contributes 14.5 % (7.1 billion tonnes CO₂equivalent) of global anthropogenic greenhouse gas emissions. (FAO)
- Cattle are responsible for the most emissions, representing about 65% of the livestock sector's emissions.
- In terms of activities, feed production and processing (45%) and enteric fermentation from ruminants (39%) are the two main sources of emissions
- About 44% of livestock emissions are in the form of methane (CH₄). Nitrous Oxide accounts for 29% and Carbon Dioxide 27%
- About 92 per cent of the fresh water is used for farming purposes, and 1/3rd of it is used for rearing livestock and manufacturing animal products.
- Ruminants such as cattle, sheep, buffalo, and goats produce methane, potent greenhouse gas that can contribute to global climate change, as part of their digestive process.
- Globally, ruminant livestock produce about 86 million metric tons of CH₄ annually.
- Animal manure produces anthropogenic CH₄ via anaerobic decomposition of manure and N₂O via nitrification and denitrification of organic nitrogen in animal manure and urine.
- Livestock operations require a variety of external inputs (i.e., feed production, herbicides, pesticides, etc.). Carbon dioxide emissions originate from the expansion of feed crops and pasture into natural habitats.
- They also originate from the use of fossil fuel to manufacture fertilizer, and process and transport feed.
- The livestock sector includes direct and indirect (e.g. electricity) on-farm fossil fuel use, which is used for machinery operations, irrigation, heating, cooling, ventilation etc.
- Land-use changes, including expansion of pasture and arable land for feed crops generally occur at the expense of forested land.
- It is estimated that livestock-related land-use change produces 35 % of the total GHGs attributed to livestock.
- Post farm CO₂ emissions is related to the processing and transportation of livestock product between the production and retail point
- Overgrazing by livestock is one of the most important cause of land degradation and desertification. Such problem is prominent in Africa, Central Asia, north-eastern Australia, Pakistan, and Afghanistan.

Measures needed:

- **Improving Feed Quality and Digestibility:** measures should be taken for better grassland management, improved pasture species, changing forage mix and greater use of feed supplements.
- **Improving animal health and husbandry:** It is important to improve animal health through measures such as animal health management, extending the productive life of animals, and improving reproduction rates to reduce the number of animals kept otherwise rather than production.
- **Agroforestry:** Agroforestry should be practiced to help maintain the balance between livestock production, environmental protection and carbon sequestration to offset emissions from the sector.
- **Manure management:** It is important to adopt sound manure management to mitigate GHG emissions, reduce nutrient losses from livestock production systems and reduce other detrimental environmental impacts of livestock production such as air and water pollution
- **Grassland management:** It is important to improve grazing and grassland management to increase feed quality and carbon sequestration. Further, overgrazing should be halted to combat land degradation and desertification.
- **Awareness:** Raising awareness about impact of livestock/meat consumption on climate is important.
- **Policy:** Countries should develop sectoral mitigation policies that integrate other development objectives, and seek international support towards their implementation.

**Conclusion:**

- Livestock farming creates a huge carbon footprint and has a very high global warming potential. However, its successful, sustainable and skilful implementation will go a long way in ameliorating the socio-economic condition of lower strata of our society.
- Thus, the need of the hour is a green, sustainable way of livestock farming which balances the needs of people and environmental conservation.

Q) Though Economic contribution of livestock is today more than that of food grain crops, absence of policy focus has stifled the sector that caters to the poorest. India's livestock productivity is 20-60 per cent lower than the global average. Discuss the challenges and concerns associated with the growth of this sector and suggest what needs to be done. (250 words)

Reference**Why this question:**

The question is based on the theme of Livestock sector of the country and the challenges and concerns associated with it.

Key demand of the question:

The answer must discuss in detail the challenges and concerns associated with the growth of livestock sector in the country.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:**Introduction:**

Describe the current status of livestock sector in India. Quote relevant facts/statistics depicting the contribution of livestock to the agricultural GDP.

Body:

The answer must discuss the following aspects:

First highlight the contribution of the sector to the agriculture sector of the country.

Then discuss specific challenges associated with the sector – Inadequate availability of credit, Poor accesses to organized markets deprive farmers of proper milk price, Limited availability of quality breeding bulls, Deficiency of vaccines and vaccination set-up, Due to industrialization and Urbanization Majority of grazing lands are either degraded or encroached, Diversion of feed and fodder ingredients for industrial use.

Conclusion:

Conclude with way forward by suggesting measures to overcome the above mentioned challenges.

Introduction:

- India's livestock sector is one of the largest in the world. About 20.5 million people depend upon livestock for their livelihood. Livestock contributed 16% to the income of small farm households as against an average of 14% for all rural households.
- Livestock provides livelihood to two-third of rural community. It also provides employment to about 8.8 % of the population in India. India has vast livestock resources. Livestock sector contributes 4.11% GDP and 25.6% of total Agriculture GDP.

Body:**Livestock resources in India:** (Source: 19th Livestock Census)

- World's highest livestock owner at about 512.05 million
- First in the total buffalo population in the world – 105.3 million buffaloes
- Second in the population of cattle and goats – 140.5 million goats
- Second largest poultry market in the world – production of 63 billion eggs and 649 million poultry meat.
- Third in the population of sheep (72 millions)
- Fifth in the population of ducks and chicken
- Tenth in camel population in the world.



Challenges faced by Livestock sector in India:

- Livestock sector did not receive the policy and financial attention it deserved. The sector received only about 12% of the total public expenditure on agriculture and allied sectors, which is disproportionately lesser than its contribution to agricultural GDP.
- The sector has been neglected by the financial institutions.
 - The share of livestock in the total agricultural credit has hardly ever exceeded 4% in the total (short-term, medium-term and long-term). The institutional mechanisms to protect animals against risk are not strong enough.
- **Insurance:**
 - Currently, only 6% of the animal heads (excluding poultry) are provided insurance cover. Livestock extension has remained grossly neglected in the past.
 - Only about 5% of the farm households in India access information on livestock technology. These indicate an apathetic outreach of the financial and information delivery systems.
- **Lack of access to markets** may act as a disincentive to farmers to adopt improved technologies and quality inputs.
- **Productivity:**
 - Improving productivity of farm animals is one of the major challenges. The average annual milk yield of Indian cattle is 1172 kg which is only about 50% of the global average.
- **Diseases:**
 - The Frequent outbreaks of diseases like Food and Mouth Diseases, Black Quarter infection, Influenza etc. continue to affect Livestock health and lower the productivity.
- **Environment:**
 - India's huge population of ruminants contributes to greenhouse gases emission adding to global warming. Reducing greenhouse gases through mitigation and adaptation strategies will be a major challenge.
- **Crossbreeding of indigenous species** with exotic stocks to enhance genetic potential of different species has been successful only to a limited extent.
- **Limited Artificial Insemination services** owing to a deficiency in quality germplasm, infrastructure and technical manpower coupled with poor conception rate following artificial insemination have been the major impediments.
- Livestock derives a major part of their energy requirement from agricultural by-products and residues. Hardly 5% of the cropped area is utilized to grow fodder. India is deficit in dry fodder by 11%, green fodder by 35% and concentrates feed by 28%. The common grazing lands too have been deteriorating quantitatively and qualitatively.
- Except for poultry products and to some extent for milk, markets for livestock and livestock products are underdeveloped, irregular, uncertain and lack transparency. Further, these are often dominated by informal market intermediaries who exploit the producers.
- Likewise, **slaughtering facilities are too inadequate**. About half of the total meat production comes from un-registered, make-shift slaughterhouses. Marketing and transaction costs of livestock products are high taking 15-20% of the sale price.

Measures needed:

- A national breeding policy is needed to upgrade the best performing indigenous breeds.
- Buffalo breeding ought to be given more attention, while poultry breeding should be focused on conservation.
- State governments should be encouraged to participate in national breeding policy implementation. Geographical information system-based analysis must be utilised to map production systems.
- Animal health care should become a priority, with greater investment in preventive health care.
- Private investment must also be encouraged. The government needs to create better incentive structures for investment in livestock.
- State governments should sponsor research and assessment of the market, along with highlighting investment potential.

Conclusion:

- With increasing population, persistent rise in food inflation, unfortunate rise in farmer's suicide and majority of the Indian population having agriculture as the primary occupation, the practice of animal husbandry is no more a choice, but a need in contemporary scenario.



- Its successful, sustainable and skilful implementation will go a long way in ameliorating the socio-economic condition of lower strata of our society.
- Linking the animal husbandry with food processing industry, agriculture, researches & patents has all the possible potential to make India a nutritional power house of the world. Animal husbandry is the imperative hope, definite desire and urgent panacea for India as well as the world.

Q) Subsidies are often criticised that instead of offering solutions to the problems they themselves become a problem. In the light of the above statement discuss the issues surrounding the subsidy system in India. (250 words)

[Timesofindia](https://www.timesofindia.com)

Why this question:

The question is based on the theme of Subsidies.

Key demand of the question:

The answer must evaluate in what way subsidies often fail to achieve their actual intent and end up becoming a problem in themselves.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Begin with brief on what you understand by subsidies.

Body:

Discussion should include the following:

Paint a picture of the history of subsidies as a concept that evolved in India since independence and that the basic objective of the public distribution system in India is to provide essential consumer goods at cheap and subsidized prices to the consumers so as to insulate them from the impact of rising prices of these commodities and maintain the minimum nutritional status of our population.

Explain the associated challenges, advantages and disadvantages.

Discuss in detail the problems of public distribution system in India.

Conclusion:

Conclude with way can be done to overcome the issue and make the concept work .

Introduction:

- A subsidy, often viewed as the converse of a tax, is an instrument of fiscal policy. It literally implies coming to assistance from behind. However, their beneficial potential is at its best when they are transparent, well targeted, and suitably designed for practical implementation.
- Subsidies are helpful for both economy and people as well. Subsidies have a long-term impact on the economy; the Green Revolution being one example.

Body:

A welfare state without subsidies cannot be imagined. Governments have to extend subsidies to achieve objectives of socio- economic policy. By this, they aim at

- Making basic necessities affordable to poor people through extension of consumer services.
- To prepare a foundation of various economic sectors in which private sector can participate later. When economy is at lower stages of development, it is often unviable and unaffordable for private sector to step in production. This is mainly because there are limited resources with private investors and there are informational externalities/uncertainties.
- In such case government do handholding by supporting private sector by extending subsidies and withdrawing them when private sector becomes competitive.

Subsidies should be aimed at specific development objectives. On achievement of these objectives subsidies should be phased out. It is only then that subsidies can go well with an undistorted market economy.

Issues surrounding the subsidy system in India:

- **Misuse of subsidies:** The subsidies that are provided by the government seldom reach the small farmers. They are mostly snatched by the large farmers or the manufacturers.



- **Distortion of trade:** Input subsidies distort trade by increasing net exports of input intensive commodities while decreasing net exports of commodities which require relatively few inputs. Many countries like Australia, US and UK have challenged the subsidies on wheat, sugarcane etc. which they claim are distorting trade.
- **Increased financial burden:** The expenditure on subsidies has doubled in the last decade leading to widening fiscal deficit of the country. It is driven primarily by subsidies in fertilizer and electricity. Most of the expenditure made on subsidies goes into the wrong hands and thus perpetuates their requirement as the position of farmers does not improve.
- **Uneven distribution:** Unevenness is rife across regions, crops and differing farm sizes. For example-it is alleged that subsidies have benefitted more to the north Indian states as compared to south and north eastern states.
- **Flawed policies:** Hostile policies have compounded the problems as no major fertilizer plants have come up in the last many years. A huge fraction of urea requirements is still met with imports.

Instances of misuse of subsidies:

- In case of food subsidy, PDS suffers from considerable leakage and apart from a low coverage of poor; the magnitude of benefit derived by the poor is very small.
- In case of electricity, the subsidy rates have been rising for both agriculture and domestic sectors because the unit cost has been rising faster than the relevant tariff-rate. Also, there is considerable variation in the level of per capita electricity subsidy indicates that, in the richer States, the per capita subsidy is substantially higher as compared to that in the poorer States.
- In case of public irrigation, water has a very high marginal productivity when used in conjunction with HYV of seeds, chemical fertilisers, power and other related inputs. It is the richer farmers who may derive relatively larger benefits because of their capacity to use these allied inputs.
- Subsidies to elementary education form about half of the total subsidies on general education. However, this is not true for all individual States: the share of elementary education is lowest in the high income States and the highest in the low income States (Goa, Punjab and West Bengal actually give higher subsidies to secondary education than primary education). A negative correlation between the level of per capita income and the share of subsidies to elementary education is thus discernible. Most subsidies to higher education accrue predominantly to the better-off sections of society as they have an overwhelming advantage in competing out prospective candidates from the poorer sections in getting admission to courses that are characterised by scarcity of seats.
- For subsidies of health, the greater emphasis on curative health care expenditure often reflects a bias towards the better-off people whereas preventive health care expenditure with much larger externalities would clearly be of greater help to the economically weaker sections of the society.

Way forward:

- Reducing the overall scale of subsidies
- Making subsidies as transparent as possible using JAM trinity
- Using subsidies for well defined economic objectives
- Focusing subsidies to final goods and services with a view to maximising their impact on the target population at minimum cost
- Instituting systems for periodic review of subsidies
- Use of technology like Direct Benefit Transfer to the beneficiaries' bank account, Aadhar Enable Payment System etc.

Conclusion:

- Subsidies are meant for poor people and they shall ensure equitable redistribution of resource. Subsidies extended to rich are regressive. They help in keeping poverty intact and create inefficiencies in economy which culminates in inflation and corruption.
- Rationalization of subsidy regime will improve markets in India which will then attract more investment. This in short, can turn the wheel of a virtuous economy which creates more employment and attacks poverty at its roots.

Q) What is Public Distribution System (PDS)? discuss its basic objective in India and explain how has coming of Aadhaar changed the functionality of PDS. (250 words)

Reference

Why this question:

The question is to evaluate What is public distribution system what is its importance and in what way the Aadhaar has changed the mode of functionality of the PDS.



Key demand of the question:

The answer must discuss in detail the concept of PDS, effects of Aadhar on the modalities of its working and how over a period of time it has only gotten better and that there is still scope for improvement.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In short explain what is meant by public distribution system.

Body:

The answer should have the following dimensions covered:

What is meant by public distribution system?

What are the drawbacks of public distribution system?

What is the basic objective of public distribution system in India?

How has Aadhaar changed the mode of working of the system – pros and cons.

What are the advantages, challenges etc.

Conclusion:

Conclude with way forward.

Introduction:

- The **Public Distribution System (PDS)** is an Indian food security system which evolved as a system for distribution of food grains at affordable prices and management of emergency situations. It distributes subsidized food and non-food items to India's poor.
- This scheme was launched in June 1947. It functions through a network of Fair Price Shops at a subsidized price on a recurring basis.

Body:

The objectives of the Public Distribution System are as follows:

- To protect the low income groups by guaranteeing the supply of certain minimum quantities of food grains at affordable price.
- Ensuring equitable distribution.
- Controlling the price rise of Essential Commodities in the open market.

Aadhar and functionality of PDS:

- **Aadhaar as an identifier:**
 - People belonging to marginalized sections of the society often do not have a valid proof of identity. As a result, they miss out on availing social benefits provided by the government. Aadhaar has been successful in solving this problem.
 - One of the quintessential properties of Aadhaar is its uniqueness. It is an identification that a person can carry for a life time and potentially use with any service provider thus, fundamentally becoming a pro-poor identification infrastructure.
- It provides a single view of beneficiary data and information, aiding in streamlining policy decisions for the state
- **Social benefits delivery services:**
 - Enables State Governments to directly transfer benefits to beneficiary accounts under various schemes.
- **Beneficiary Identification:**
 - Helps in sanitizing the State's/Department's databases and uniquely identifying beneficiaries by removing ghost/duplicate identities
- **Demographic and development planning:**
 - Enables valuable anonymized demographic data to help development planning at State, District and local government levels.
- **Preventing leakages:**
 - Welfare programs, where beneficiaries need to be confirmed before service delivery, also stand to benefit from UIDAI's verification service.
 - Examples of such usages include subsidized food and kerosene delivery to Public Distribution System (PDS) beneficiaries.



- This usage would ensure that services are delivered to the right beneficiaries only.

However, the use of Aadhaar-based biometric authentication (ABBA) in the public distribution system has its own share of challenges:

- ABBA requires not only Aadhaar seeding, but also successful fingerprint authentication at the ration shop every month. That, in turn, requires a functional Point of Sale (PoS) machine, adequate connectivity, and reasonably smooth fingers. Despite some alleged safeguards, the system is far from perfect
- Evidence from Jharkhand suggests that ABBA is of little use in reducing PDS corruption.
- Neither seeding nor the ABBA can stop quantity fraud.
- If PDS dealers give people less than their due, biometric authentication does not help.
- Cases of deaths due to hunger as people could not collect rations because of a biometric mismatch at the PDS shop.
- Disenfranchisement of the elderly and the disabled, as ABBA requires beneficiaries to visit the PDS outlet personally for fingerprint authentication.
- **Seeding issues:**
 - When benefits are paid through Aadhaar-enabled means such as the Aadhaar Payments Bridge System (APBS), the first step is to seed the list of beneficiaries with the corresponding Aadhaar numbers. Seeding is a tedious operation and it has to be done each time a new scheme is inducted. Those who have failed to comply are simply removed from the lists
 - Seeding often creates inconsistencies between ration-cards database and the Aadhaar database.
 - Many poor people do not know the rules of Aadhaar seeding and biometric authentication.
- **Inclusion errors** increase the financial burden of the state, exclusion errors can often leave poor families vulnerable to hunger.
- **Deprivation of poor:**
 - Poor people often find themselves deprived of their rights in the process. For instance linking one's pension or ration card or bank account with Aadhaar is a tedious process as data-entry errors are common.
 - And even without such errors, Aadhaar linking often fails because a person's demographic details in the Aadhaar database do not match the corresponding details in her job card or ration card.
 - The government failed to address these issues as job cards, ration cards and pensions have been mass-cancelled in many states

Way forward:

- Inconsistencies need to be resolved for successful Aadhaar seeding.
- It is essential to deal with issues of duplication, use less disruptive methods than Aadhaar such as food coupons, smart cards, and last-mile tracking
- Using other technology to curb corruption like computerisation, SMS alerts, online availability of official records, toll-free help lines and so on.
- It is imperative that the Union Government enact a privacy legislation that clearly defines the rights of citizens consistent with the promise of the Constitution.
- The government should factor in privacy risks and include procedures and systems to protect citizen information in any system of data collection. It should create institutional mechanism such as Privacy Commissioner to prevent unauthorised disclosure of or access to such data.
- Our national cyber cell should be made well capable of dealing with any cyber attack in shortest time.

Conclusion:

- PDS has helped bring about the socio-economic justice by helping alleviate hunger, malnutrition, anaemia among poorest of the poor, BPL citizens, women and children. The use of ICT to reduce the touch-points will further increase the efficiency of PDS.

Topic: Infrastructure: Energy, Ports, Roads, Airports, Railways etc., Investment Models.

Q) The global automobile industry is striding forward to move away from fossil fuels. Do you think India become a world leader in electric vehicles industry? Critically analyse the issues and challenges in front of Indian automobile industry to shift to electric vehicles. (250 words)

The hindu

**Why this question:**

To push the adoption of electric mobility in the country, government think-tank NITI Aayog has proposed the establishment of giga factories in India for the manufacture of lithium-ion batteries in the next couple of years.

Key demand of the question:

The answer must evaluate the current automobile industry scenario in India and the challenges before it in shifting to the electric mobility generation technology.

Directive:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:**Introduction:**

In short explain the current automobile industry scenario in India.

Body:

The answer must analyse the global trends of electric mobility, its importance, then explain what are the issues or challenges for Indian automobile industry to move away from current fossil fuel based system to electric mobility system. One has to discuss in detail the bottlenecks and suggest way forward as to what needs to be done and how far can India achieve in this direction.

Conclusion:

One can conclude with government’s efforts in this direction.

Introduction:

- Electric vehicles (EVs) are automobiles that run on electricity only. They are propelled by one or more electric motors powered by rechargeable battery packs. Electric vehicles are cleaner than petroleum-fuelled vehicles and are seen as a promising solution to global warming.
- To push the adoption of electric mobility in the country, government think-tank NITI Aayog has proposed the establishment of giga factories in India for the manufacture of lithium-ion batteries in the next couple of years.

Body:

- India definitely has the potential to be a global leader in EVs and the government is making strong push in favour of the electric vehicles or the e-vehicles. Government is also encouraging or sometimes even forcing auto industry to shift towards the e-vehicles. While e-vehicles have their benefits over normal vehicles, the topic of e-mobility seems to be missing from the agenda of the government.
- E-vehicles reduce the localized pollution and are important in the cities like Delhi, Pune, Lucknow etc. Such vehicles would also reduce the dependence on the petroleum, import of which has adverse effect on Indian economy. E-vehicles are also instrumental in reducing the emission of green-house gases and many health hazards

Issues and challenges involved:

- **Price Volatility:**
 - The first has to do with policy volatility. E-mobility is a nascent industry in India and most of the developing countries. Capital costs are high and the payoff is uncertain.
 - Inconsistencies remain. For instance, while electric vehicles are taxed at 12% under the goods and services tax (GST), batteries were taxed at 28% until recently. This has now been lowered to 18% but the discrepancy still exists.
- **Lack of policy certainty: Cannot frame in Isolation:**
 - The lack of policy certainty spills over into perhaps the single most important element of enabling e-vehicle usage: charging infrastructure.
 - Lack of attention on building charging infrastructure.
- **Local and Private Investment results in Low Cost production Technology:**
 - Localization is another tricky area, as the strife caused by the rupee’s depreciation has shown.
 - India does not have any known reserves of lithium and cobalt, which makes it entirely dependent on imports of lithium-ion batteries from Japan and China.
- **Short Driving Range and Speed**
 - Most of these cars have range about 50-100 miles and need to be recharged again.



- **Battery Recharge Issues**
 - An electric car takes about 4-6 hours to get fully charged. Therefore there is a need for dedicated power stations as the time taken to recharge them is quite long.
- **Silence as Disadvantage**
 - Silence can be a bit disadvantage as people like to hear noise if they are coming from behind them
 - An electric car is however silent and can lead to accidents in some cases.
- **Limited seating capacity**
 - They are not meant for entire family and a third person can make journey for other two passengers bit uncomfortable.
- **Not Suitable for Cities Facing Shortage of Power**
 - Cities already facing acute power shortage are not suitable for electric cars.
 - The consumption of more power would hamper their daily power needs.
- **High cost**
 - The primary reason for the current high prices of EVs is the expensive battery

Way forward:

- For EVs to contribute effectively, we need commensurate efforts in developing an entire ecosystem.
- Need to shift the focus from subsidizing vehicles to subsidizing batteries because batteries make up 50% of EV costs.
- Increasing focus on incentivizing electric two-wheelers because two-wheelers account for 76% of the vehicles in the country and consume most of the fuel.
- A wide network of charging stations is imminent for attracting investment.
- Work places in tech parks, Public bus depots, and Multiplexes are the potential places where charging points could be installed. In Bangalore, some malls have charging points in parking
- Corporates could invest in charging stations as Corporate Social Responsibility compliances.
- Addressing technical concerns like AC versus DC charging stations, handling of peak demand, grid stability etc.
- Private investment in battery manufacturing plants and developing low cost production technology is needed.
- India is highly dependent on thermal sources, which account for about 65% of current capacity. As EV adoption increases, so should the contribution of renewables.
- Need for a policy roadmap on electric vehicles so that investments can be planned.
- Acquiring lithium fields in Bolivia, Australia, and Chile could become as important as buying oil fields as India needs raw material to make batteries for electric vehicles.
- Providing waiver of road tax and registration fees, GST refunds and free parking spaces for EVs.

Conclusion:

- Environment-friendly EVs will reduce air pollution and thus contribute to the fight against climate change. As per **NITI Aayog's report** EVs will help in cutting down as much as 1 Gigatonne (GT) of carbon emissions by 2030. The government should have a role.
- Instead of trying to pick winners, the government should focus on building an enabling business environment that supports research and innovation.

Q) Discuss the prospects for ports in India. What are the issues and challenges with Indian Ports ? Examine. (250 words)

Indian geography by Majid Hussain

Why this question:

The question is based on the policy perspective with respect to the investments in the defense sector and in what way FDI brings in self-reliance and Indigenization.

Key demand of the question:

The answer must discuss the importance of FDI in defense, trace its evolution And analyse in detail its implications.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Discuss first the importance of investments in defense sector in general.

**Body:**

The body of the answer to have the following aspects covered in detail :

Explain the evolution of FDI in Defence Sector.

Then discuss the associated advantages (Transparency, Quality Products, Reduction of Reserves, Positive Performance Pressure on Public Sector Enterprises, Employment Opportunities etc.) and disadvantages (Security Concerns, Competition for Domestic Private Industry, Overbearing Presence of Foreign Companies etc.)

Then focus on to explaining the Implications of FDI in Defense on Self-Reliance and Indigenization.

Conclusion:

Conclude with way forward.

Introduction:

- India by virtue of being a peninsular country with a long coastline has the natural advantage of developing ports. There are 13 major ports in the country; 6 on the Eastern coast and 6 on the Western coast. Further there are about 200 non-major ports.
- The 12 major ports in the country have a combined total capacity of 1,065 million metric tonnes (MMT), while the capacity at non-major ports is roughly 700MMT. Currently 95% of India's trade by value and 70 % by volume take place through maritime transport.

Body:**Major Ports of India:****Issues and challenges with Indian Ports:**

- High turnaround times:** Ports in India suffer from high turnaround times for ships. For example, in Singapore, average ship turnaround time is less than a day. However, in India, it is over two days.
- Port congestion:** Port congestion due to container volume, shortage of handling equipment and inefficient operations is a major concern. Example: In Nhava Sheva port
- Sub-optimal Transport Modal Mix:** Lack of requisite infrastructure for evacuation from major and non-major ports leads to sub-optimal transport modal mix
- Limited Hinterland Linkages:** There is inefficiency due to poor hinterland connectivity through rail, road, highways, coastal shipping and inland waterways. This in turn increases the cost of transportation and cargo movement
- Lengthy inspection and scrutiny:** Though customs operations in India are rapidly going paperless and converting to digital, inspections and scrutiny continue to be lengthy for cargo and other shipping operations.
- Inadequate infrastructure and Technology Issues:**
 - Lack of adequate berthing facility, number of berths, sufficient length for proper berthing of the vessels at the Non-Major Ports is another problem.
 - Most Non-Major Ports do not have proper material handling equipment in place which could facilitate a quick turnaround
 - Most Indian ports lack of equipment for handling large volume
 - Further many ports also lack adequate navigational aids, facilities and IT systems
- Issues with Regulations:**
 - The major problem with regulation is that major and non-major ports fall under different jurisdictions. Further, the regulatory framework is rigid.
 - Foreign-flagged vessels are not allowed to ship cargo from one Indian port to another as that remains a protected turf for domestic shippers
 - Land acquisition and environmental clearances are some specific challenges for non-major ports.
- Issues with PPP Model:**
 - Most port PPPs impose strict limits on what private operators are allowed to do, usually in terms of the types of cargo they are allowed to handle.





- Until recently, Other problems were related to tariff regulation and absence of dispute resolution mechanism
- **Environmental impact:**
 - During the operation of ports, spillage or leakages from the loading and unloading of cargo and pollution from oil spills are common due to poor adherence to environmental laws and standards.
 - The water discharged during the cleaning of a ship and the discharge of ballast water is a threat to marine ecosystems
 - Dredging causes environmental problems (increased sedimentation) affecting local productivity of the local waters and its fisheries.
- **Social impacts of Port Development:**
 - Most port projects and development results in displacement (such as Gangavaram Port in Andhra and Mundra in Gujarat).
 - Besides displacement, the other important concern expressed by fishing communities is the restriction of access to fishing grounds around a port.
- **Manpower and Labour Issues:** Lack of adequate training, falling manpower quality, opposition to reform are major issues
- **Unhealthy Competition:** Analysts have cited the concerns over development of multiple ports in close vicinity handling similar cargo as it might lead to ports competing for the same cargo arrivals.

Measures needed:

- Environmental clearances, Tariff norms, land acquisition etc. need to be standardized and implemented for the port sector so as to boost foreign investments
- It is important to provide rail and road connectivity to major and minor ports in order to ensure seamless multimodal transport and improve efficiency
- Priority should be given on expanding capacity and improving operational efficiency. Emphasis should be placed on installing advanced cargo handling processes, scalability in processes and mechanisation of port operations.
- Technologies like big data and advanced GPS navigation systems should be optimally used for better functioning of ports
- The regulatory regime should be made less complex and less rigid. Further, there should be vertical integration of all stakeholders (for example: environment, rail/road transport etc.) for holistic development of ports in India
- With regards to ports, **Vijay Kelkar committee on PPP** recommended review of role and need of Tariff Authority for Major Ports (TAMP), review of MCA, quicker clearances, rationalized leases and stamp duties
- Port modernisation and new port development, port connectivity enhancement, port-linked industrialisation and coastal community development under the Sagarmala project has an immense scope for reduction in transportation and logistics costs and boosting export competitiveness.
- **Niti Aayog in its Three Year Acton Agenda (2017-2018)**, recommended the following:
 - Increase competition through easing cabotage
 - Increase the capacity of and eliminate discriminatory provisions for Indian vessels
 - Explore creating deep-water ports or barges for ports with low drafts
 - Facilitate minor/non-major port connectivity to hinterland areas

Conclusion:

- Sagarmala project has to be devised to reduce logistics cost and strengthen India's EXIM industry. Thus, in order to achieve higher economic growth and higher efficiency levels, the trade-GDP ratio needs to increase substantially.
- Improvement in the efficiency of ports and expansion of their capacity is essential for promoting the growth of trade and export competitiveness.

Q) Despite proper implementation to providing access to clean cooking fuel, the Ujjwala Yojana seems to have hit a roadblock with respect to affordability. Analyse the issue and provide for an assessment on the feasibility of further expansion of this programme. (250 words)

[Reference](#)

**Why this question:**

The question is about analysing the success of the Ujjwala Yojana.

Key demand of the question:

The answer must discuss in detail the progress made by Ujjwala yojana in achieving access to the cleaner cooking fuel and to what extent it will be right to proceed with the program further.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:**Introduction:**

Begin with brief intro on the program intent – Ujjwala Yojana aims at providing clean cooking fuel to BPL families. The scheme aims at providing access to the under privileged sections of the society.

Body:

Discussion should include the following:

Explain why there are doubts about the question of affordability with respect to the program.

List the various causes like – cost involved, Black marketing, Lack of door delivery of cylinders is also adversely impacting refilling of cylinders in rural areas. Thus, one must detail on the aspects of the logistics hinderances and lack of penetration of the scheme and suggest solutions to overcome the same.

Conclusion:

Conclude that one aspect alone should not decide success or failure and that with suitable corrections and fixes the program can still achieve its mandate.

Introduction:

- Pradhan Mantri Ujjwala Yojana (PMUY) is a scheme of the Ministry of Petroleum & Natural Gas for providing LPG connections to women from **Below Poverty Line (BPL) households**. India is home to more than 24 Crore households out of which about 10 Crore households are still deprived of LPG as cooking fuel and have to rely on firewood, coal, dung – cakes etc. as primary source of cooking.
- The PMUY has helped the spread of LPG cylinders predominantly in the urban and semi-urban areas with the coverage mostly in middle class and affluent households. It aims to safeguard the health of women & children by providing them with a clean cooking fuel – LPG, so that they don't have to compromise their health in smoky kitchens or wander in unsafe areas collecting firewood.

Body:**Achievements:**

- The oil ministry's Petroleum Planning and Analysis Cell (PPAC) estimates that LPG coverage in India (the proportion of households with an LPG connection) has increased from 56% in 2015 to 90% in 2019. There is a significant increase in eastern states, with 48% of the beneficiaries being SC/STs.
- The government reports show that around 80% of the beneficiaries have been refilling cylinders, with average per capita consumption being 3.28 cylinders.
- PMUY has resulted in an additional employment of around 1 Lakh and provide business opportunity of at least Rs. 10,000 Crore in last 3 Years to the Indian Industry.
- The scheme has also provided a boost to the 'Make in India' campaign as all the manufacturers of cylinders, gas stoves, regulators, and gas hose are domestic.
- PMUY reduces these ill-effects by providing clean fuel and cutting out on drudgery. Increased use of cooking gas will shrink the incidence of tuberculosis in India, based on the statistics from the latest National Family Health Survey (NFHS-4) on TB prevalence.
- PMUY has helped in reducing the drudgery for women. The time saved can be used in socio- economically productive activities like **Self-Help Group activities**.
- The **World Health Organisation** hailed PMUY as decisive intervention by the government to facilitate the switch to clean household energy use, thereby addressing the problems associated with Indoor Household Pollution.

However, given the **scale** of the scheme there are some **implementation shortcomings** of the scheme

Cost issues:

- Consumers were paying market price for refills till the loan repayment for stove and first refill was made. This led to some consumers not going in for such refills.



- **Economic Burden:** The **increased monthly expenditure** has shied many consumers away from LPG and lured them back to firewood and cow-dung cakes.
- The **CEEW study** across Uttar Pradesh, Madhya Pradesh, Jharkhand, Bihar, West Bengal and Odisha found people were unwilling to pay upfront Rs.900-1,000 for a 14 kg refill.
- A **CRISIL Study** shows that of those surveyed, 86% said they had not shifted from biomass to LPG because the price of installing a connection was too high. Almost the same number – 83% – said the price of refills was too high.

Administrative issues:

- The government claims that around 80% of the beneficiaries have been refilling cylinders, with average per capita consumption being 3.28 cylinders. But there are implementation issues with the scheme in Madhya Pradesh, for instance.
- Aadhar seeding also faces issues caused by data discrepancies, especially where the spelling of names is concerned as a result of which applicants can find themselves unable to register for the scheme.

Logistic issues:

- Lack of LPG cylinder bottling plants near rural areas and connectivity issues especially in the tribal areas.
- Last-mile connectivity and delivery still poses a great challenge.

Safety and Behavioural issues:

- Safety has been another concern about distribution of LPG connection, especially to BPL families. Lack of awareness and safety amenities in beneficiary households have increased the likelihood of accidents.
- Cow-dung cakes lying around the house all the time. Hence, LPG cylinders are used on special occasions or during some kind of emergency or when it's entirely too hot to burn wood.
- The CRISIL report also noted that 37% of households in rural areas procure cooking fuel for free.
- **Agency:** Most rural women do not have a say in determining when a refill is ordered, even though the connection is in their name.

Way Forward:

- **Increase Affordability:** A case in point is state-run fuel retailers introducing a 5kg refill option to make purchases affordable.
- **Increase Accessibility:** Gas Agencies should be set up within 10km radius, especially in the rural and remote areas to increase accessibility.
- **Increase Availability:** Alternatives like Gas-grid and piped connections in cities and areas near the bottling plants can free up the cylinders for other areas.
- **Promote 'Give it up':** The initiative of the government to persuade the well-off to give up the LPG subsidies has added to the corpus of PMUY. Similar initiatives can be promoted.
- **Encourage Private Players** to set up LPG franchises at rural areas.
- **Sensitization and Education** of safe use of LPG through **LPG Panchayats, NGO's etc.**

Conclusion:

- PMUY is a novel scheme having twin benefits of women empowerment as well as environmental conservation.
- Ironing out the implementation issues can reap the envisioned benefits and lead to a sustainable future in energy consumption.

Q) The issue of paused infrastructure projects in India, is an indicator of market and regulatory failure. Discuss. (250 words)

Reference

Why this question:

The question is pertaining to the hurdles infrastructure in India are facing due to market failures and regulatory failures.

Key demand of the question:

The answer must discuss what are the issues with respect to infrastructure projects in India, what are the causes of such issues and what needs to be done.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.



Structure of the answer:

Introduction:

Begin with brief intro on infrastructure projects and their significant contribution in the growth and development of the country.

Body:

Discussion should include the following:

Explain that India has an enormous infrastructure gap, but it can be bridged by cooperation between the public and private sectors.

Discuss the challenges infrastructure projects are facing due to market and regulatory failures like corruption, political and regulatory risk, access to financing and macroeconomic instability.

Suggest what needs to be done to overcome these bottlenecks.

Conclusion:

Conclude with way forward.

Introduction:

- Infrastructure is a key driver of the overall development of Indian economy. It is seen that investments in infrastructure equal to 1% of GDP will result in GDP growth of at least 2% as infrastructure has a “**multiplier effect**” on economic growth across sectors.
- The recent headway made in developing transport infrastructure will prove to be the biggest enabler for growth.

Body:

- The critical role of finance in economic growth is widely acknowledged and developing well-functioning financial markets has become a central focus of economic policies across the world.
- A new World Bank study suggests that investing in infrastructure in regions with basic financial development can help these regions overcome barriers to economic growth.
- According to Economic Survey 2018, India will need about USD 4.5 trillion in the next 25 years for infrastructure development.

Challenges faced by infrastructure projects in India:

- **Political and regulatory risk:** it has many facets. There are various categories of approvals required across the project cycle at every stage, right from the pre-tendering stage to post-construction. They include community opposition on an investment, changes to asset-specific regulations and breach of contract terms. In the case of India, denial of payments from the government that go against contractual agreements seem to be perceived as highly likely to influence future investment decisions.
- **Land acquisition:** Several projects have been stalled or delayed due to land acquisition. There are multiple reasons that lead to delays in land acquisition. One primary reason has been resistance from farmers or local communities whose land is being acquired. Large road and energy projects can take several months to be awarded and if processes are not clear and impartial enough, investors hardly mobilize resources to bid.
- **Environmental Impact Assessment:** Environmental safeguards and guidelines are evolving, which are similar to the scale and complexity of infrastructure projects. While new projects need to comply with these regulations, even a project under construction may sometimes need to comply with revised standards midway through the execution stage.
- **Access to financing:** It touches upon the core feature of infrastructure: its long-term payback period. It affects financiers and investors who are looking for long-term and steady returns. After the global financial crisis though, long-term lending is not easy to get, India not being an exception.
- **Capacity of private players:** another emerging challenge for the achievement of large infrastructure projects is the capacity of the private sector to undertake or implement such projects.

Measures needed:

- **Land acquisition:** by relaxing transfer regulations for land it owns, the government has taken a positive step. This should resolve the delay of projects by procedural issues, and complement the guidelines to resolve land issues. The government is expected to follow up with land acquisition policies or guidelines for project authorities and sponsoring agencies
- **Fast-track policy and regulation reforms for enhanced implementation:** Sponsoring agencies need to make a concerted effort to develop strong performance management systems to drive timely execution of This includes defining performance standards for nodal agencies and creating a transparent and accurate tracking mechanism as well as performance-linked incentives and penalties.



- **Dispute resolution:** Given the extremely slow pace of Indian courts, this can be a long-drawn process. The government may also consider setting up single quasi-judicial authority for all the infrastructure sectors. This authority would have statutory powers to resolve disputes between the authorities and private developers.
- **Eliminate Regulatory Cholesterol:** A large number of projects are delayed due to delayed regulatory approvals or clearances from different agencies. Government agencies often function independently, and there is no incentive or obligation to cooperate with project authorities to expedite the approval process. To eliminate this issue, a Performance Review Unit should be given powers to gather information from nodal agencies on clearances and incentivise or regulate this.
- **Facilitating funds:** Setting up of Infrastructure Debt Funds (IDFs) and reduction in 'withholding tax' on the interest paid on these bonds are some other positive measures that are expected to facilitate the flow of long-term debt into infrastructure projects
- **Private-Public Partnerships:** Allowing the private sector into some former fully government-owned infrastructure sectors, such as telecommunications and domestic civil aviation, has produced exemplary results. Early experience with private involvement in these areas is generally positive, but outcomes under contracts need careful monitoring.
- **Independent authorities and facilitators:** The government has set up a Project Monitoring Group (PMG) to track frozen projects and remove bottlenecks. Any project in infrastructure can be referred to the group for resolution. The PMG has already been successful in resolving more than 200 of the projects referred to it, worth nearly 30% of the value of all projects, according to the World Bank.

Conclusion:

- If proper effort is made in expanding education, health facilities, and physical infrastructure and improving their quality by increasing budgetary allocation and improving governance, it will go a long way in reducing poverty, improving human development, and reviving and sustaining high rates of economic growth in India.

Q) Public investment, especially in the railways, can play an important role to revive growth and promote Make in India. Discuss. (250 words)

[Indianexpress](https://www.indianexpress.com)

Why this question:

The question intends to examine the role of Railways as a transport system in reviving the growth scenario.

Key demand of the question:

The question is about discussing the role of public investments in Railways to revive growth and promote the flagship program of Make in India.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief explain the role played by railways in the economic growth and development.

Body:

The answer should explain the significance of public investments in Railways, in what way such investments will boost modernization of Indian railways.

The crux of the answer should focus on significance of Railways as a transport system in aiding the economic growth of the country.

Conclusion:

Conclude by suggesting way forward.

Introduction:

- Indian Railways (IR) has been the **prime movers of the nation**. IR is the **second largest railway system in the world** under single management. IR has historically played an important integrating role in the socio-economic development of the country.
- Despite reforms, the efficiency of service delivery is stumbling block in overall progress. Railway Minister recently rejected opposition's allegation that the government is working to privatise the national transporter, but said the ministry will invite investments for new technology, lines and projects in national interest.

**Body:**

Potential areas where private participation can be done:

- Indian railway is suffering from low investments, poor capacity, congestion, low speeds, and poor conditions of railway stations.
- The budgetary resources are not sufficient to make up for the investments required.
- PPP approach can be used to transform the railway in different areas comprising from ticketing, station construction and upkeep, rolling stock manufacturing, signalling etc.
- **The Bibek Debroy Committee**, which was set up to suggest ways to mobilise resources for the Indian Railways and restructure the Railway Board, has favoured privatisation of rolling stock: wagons and coaches.

Benefits of private investment in Railways:

- Opens opportunity for returns from investment in Rail Projects.
- Augmentation of railway infrastructure and decongestion of the railways.
- Ensure timely availability of Rail Infrastructure to the beneficiaries viz. Port, Industry and States.
- Better maintenance and efficiency in implementation of projects.
- The PPP projects in case of airports have shown that this mode greatly helps in improving quality of services.
- It leads to simplification of cost recovery for the money spent by the government in setting up the infrastructure. It would be profitable as the government would charge the operator
- The move would foster competition and hence lead to overall betterment in the quality of services.

Challenges:

- **Coverage Limited to Lucrative Sectors:** An advantage of Indian Railways being government- owned is that it provides nation-wide connectivity irrespective of profit. This would not be possible with privatisation since routes which are less popular will be eliminated, thus having a negative impact on connectivity. It will also render some parts of the country virtually inaccessible and omit them from the process of development.
- **Fares:** Given that a private enterprise runs on profit, it is but natural to assume that the easiest way of accruing profits in Indian Railways would be to hike fares, thus rendering the service out of reach for lower income groups.
- **Affects socio-economic development:** This will defeat the entire purpose of the system which is meant to serve the entire population of the country irrespective of the level of income
- **Accountability:** Private companies are unpredictable in their dealings and do not share their governance secrets with the world at large. In such a scenario it would be difficult to pin the accountability on a particular entity, should there be a discrepancy.

Way forward:

- Link increase in passenger fares to better passenger services
- Create a separate company for railway infrastructure
- Open access for any new operator who wishes to enter the market for operating trains
- Separate suburban services and run them as joint ventures with state governments.
- Private entry into running both freight and passenger trains in competition with Indian Railways
- Separation of rail track from rolling stock

Conclusion:

- High costs and lower returns, policy uncertainty, absence of a regulator to create a level playing field, the lack of incentives for investors and procedural or operational issues have significantly restricted private sector participation.

Q) Infrastructure expansion has witnessed noteworthy stimulus in India in the recent times. Discuss. (250 words)

Indian economy by Dutta and Sundaram

Why this question:

India requires a huge corpus of investment in order to cope up for its infrastructure deficits. The sector has witnessed moderate growth recently and the government has also initiated various steps to boost investment in infrastructure sector.

Key demand of the question:

The answer must detail about the status of infrastructure growth in India and bring out in detail the impetus received by the sector recently.

**Directive:**

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:**Introduction:**

In few lines bring out the current state of India's infrastructure sector, in what way it drives the economy.

Body:

Discussion should include the following:

First highlight the present stimulus that the sector is witnessing in India, what are the various provisions in terms of laws, policies, programs that the sector is gaining prospects from.

Explain what are the present infrastructure gaps existing currently, in what way these gaps can be addressed.

Conclusion:

Conclude with way forward.

Introduction:

- Infrastructure is a key driver of the overall development of Indian economy.
- It is seen that investments in infrastructure equal to 1% of GDP will result in GDP growth of at least 2% as infrastructure has a **"multiplier effect"** on economic growth across sectors. The recent headway made in developing transport infrastructure will prove to be the biggest enabler for growth.

Body:**Significance of Infrastructure expansion:**

- Infrastructure development helps in **poverty reduction** due to its high employment elasticity leading to huge job creation capabilities.
- It also has the **trickle-down effect** as better transportation infra can lead to access to education, health and other basic necessities.
- **Increasing the manufacturing growth** as there is better connectivity, easier movement of goods and services, facilitating private investments
- **It reduces the regional and inter-state disparities** and leads to a balanced economic growth by regional equality.
- Infra sector **has huge spill-over effects** on other sectors of economy. It **has money-multiplier** effect too.
- **Better quantity and quality of infrastructure** can directly raise the **productivity of human and physical capital** and in turn growth of nation

Stimuli for Infrastructure in India:

- **Market Size**
 - Foreign Direct Investment (FDI) received in Construction Development sector from April 2000 to June 2018 stood at US\$ 24.87 billion, according to the Department of Industrial Policy and Promotion (DIPP).
 - The logistics sector in India is growing 10 per cent annually and is expected to reach US\$ 215 billion in 2019-20.
- **Investments**
 - India has a requirement of investment worth Rs 50 trillion in infrastructure by 2022 to have sustainable development in the country. India is witnessing significant interest from international investors in the infrastructure space. Some key investments in the sector are listed below.
 - In June 2018, the Asian Infrastructure Investment Bank (AIIB) has announced US\$ 200 million investment into the National Investment & Infrastructure Fund (NIIF).
 - Indian infrastructure sector witnessed 91 M&A deals worth US\$ 5.4 billion in 2017
- **Government Initiatives**
 - The Government of India is expected to invest highly in the infrastructure sector, mainly highways, renewable energy and urban transport.
 - Announcements in Union Budget 2018-19:
 - Massive push to the infrastructure sector by allocating Rs 5.97 lakh crore for the sector.
 - Rs 16,000 crore towards Sahaj Bijli Har Ghar Yojana (Saubhagya) scheme. The scheme aims to achieve universal household electrification in the country.



- Rs 4,200 crore to increase capacity of Green Energy Corridor Project along with other wind and solar power projects.
- Allocation of Rs 10,000 crore to boost telecom infrastructure.
- A new committee to lay down standards for metro rail systems was approved in June 2018. As of August 2018, 22 metro rail projects are ongoing or are under construction
- The Government of India is working to ensure a good living habitat for the poor in the country and has launched new flagship urban mission, the Pradhan Mantri Awas Yojana (Urban).
- In May 2018, construction of additional 150,000 affordable houses was sanctioned under Pradhan Mantri Awas Yojana (PMAY), Urban.

However, there are still **challenges which need to be tackled**.

- **Delay in Implementation and execution:** While issues around land acquisition and the time required for approvals have seen improvement over the years, India needs to ensure that such problems continue to receive constant attention.
- **Environmental Impact Assessment:** Environmental safeguards and guidelines have proven to be one of the major reasons for delay in infrastructure projects, like roads and ports.
- Given the complexity of infrastructure assets, a “**one size fits all**” solution will not work. Different models of **PPP ownership** like Hybrid Annuity, BOT needs to be tried.
- The **capital investments in infra projects are huge**, with the **NPA crisis** seen across public sector banks, credit availability has become difficult. This has in turn lead to **twin-balance sheet syndrome** with the infrastructure companies also defaulting on their payments.
- **Regulatory issues: Lack of co-ordination between various Government agencies** affecting the ease of doing business due to delayed clearances and objections.
- **Absence of a proper dispute resolution mechanism** between private players and government agencies leading to pendency of cases in courts as well as the assets in limbo.
- **Poor pre-construction planning:** Due to the already adverse effect of various impediments like land acquisition, statutory approvals, delayed financial closure, etc. the pre-construction phase of infrastructure projects is pretty long.
- Other challenges include **Geographical** as some regions are unsuitable for infra projects, **Ethnic**, etc.

Conclusion:

- If proper effort is made in expanding education, health facilities, and physical infrastructure and improving their quality by increasing budgetary allocation and improving governance, it will go a long way in reducing poverty, improving human development, and reviving and sustaining high rates of economic growth in India.

Q) Do you agree that the much of the current crisis facing Indian railways is originating from the fragmented structure of the rail bureaucracy? Critically analyse. (250 words)

Reference

Why this question:

The question aims to analyse the issues and concerns marring the Indian railways system specifically in the domain of bureaucracy.

Key demand of the question:

Explain in detail the various issues concerning the Indian railways system in what way the issues can be addressed.

Directive:

Critically analyse – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

Highlight the current state of railway affairs in India.

Body:

Explain the following points in detail –

Discuss first how railways have come far ahead in time.



Explain specific issues that still surround it despite dedicated policies and programs in place.
 Quote the reasons due to which the issue still persists, in what way they can be resolved.
 Discuss the idea of third service cadre — the Indian Railways Management Service, the idea is that the IR management service — drawing talent from the technical and logistics services etc. as solutions to the existing problems.

Conclusion:

Conclude by suggesting way forward.

Introduction:

- Indian Railways (IR) has been the **prime movers of the nation**. IR is **the second largest railway system in the world** under single management. IR has historically played an important integrating role in the socio-economic development of the country.
- Railways has been crying out for help for decades. Despite the huge allocation of funds that it gets each year, the lifeline of India continues to suffer.

Body:

- Extra information:** The Indian Railways — that runs 19,000 trains including 12,000 passenger trains to carry 24 million passengers each day on its 65,000 km tracks — confronts big challenges. Its networks are clogged, with approximately 492 of the total of 1219 sections — 40 percent of all sections — running at over 100 percent of above-line capacity. From 1950 to 1916, passenger and freight traffic grew by 1,344 percent and 1,642 percent respectively, while the network increased by a mere 23 percent

Bureaucratic hurdles:

- Bureaucratic culture** with high opaqueness and snail's rate progress.
- Officials engaged in furthering cadre goals; rather than working to fulfil the organisational goals
- Multiple recruitment techniques:** With a bench strength of over 13 lakh, the Indian Railways — the world's fourth largest rail network — has drawn personnel from three different entry points (through UPSC, direct recruitment or from the now-defunct Rail Training Institute at Jamalpur)
- Fragmentation:** IR is split up into five technical cadres (Indian Railway Service of Signaling Engineers, Indian Railway Service of Mechanical Engineers, Indian Railway Service of Mechanical Engineers) and three non-technical services (Indian Railways Traffic Service, IR Accounts Services and IR Personnel Service).
- Cadres such as the IRSS and the IRPS — that had a critical role in the early decades of the country's Independence in the absence of a domestic rail industry — continue to retain an elaborate structure despite a much reduced role.
- The IR's rolling stock has graduated from the simple steam engine machines to complex technological products, but the 29 workshops continue to be engaged in antiquated practices.

Other crises faced by IR:

- Subsidised passenger tariff** due to political incentives. This leads to an increase in freight rate which adds to inflation.
- Declining passengers in the upper classes as they have started preferring bus for short haul and flight for the longer haul. Nearly a third of passenger revenue comes from AC class passengers who constitute just 1.3 per cent of the total number of passengers travelling in a year.
- The **share of roads in freight transport is more** than half in India; while in China, it is only 30%. As more highways are getting built rapidly, the share of roads in freight transport is increasing at accelerating rate.
- Freight contributes nearly two-thirds of Indian Railway's revenue and coal transport alone contributes to half of that. Decreasing dependency on coal compounded by increasing thrust on renewable energy has crippled railway revenue.
- Regional air connectivity scheme UDAN is further going to increase Indian Railway's operational cost. India, recently, became the third-largest aviation market in the world after China and the US.
- Lack of funds:** In China, annual investment in railways is about Rs. 9 to 10 lakh crore whereas it is Rs. 40,000 crore a year in India. Over 80 percent of this budget goes towards wages and salaries.
- Unfilled vacancies** at the lower level (track men, line men, technicians).
- Railways diverting from core issues of railway safety and operation and is diverting to populist needs like wifi, catering, etc.

Measures needed to tackle bureaucratic hurdles:

- Reduce red tape and bring in efficiency. A mechanism for departments to flourish and voice their genuine concerns is what is needed for enhancing co-ordination.
- Use of new techniques for assessing aptitudes, capabilities and cohesion are to be developed.



- Ultimately, appropriate powers should be vested in the DRMs, GMs and the Railway Board for hassle free decision making.
- Streamlining by amalgamation of eight existing railway services — besides the Railway Protection Force (RPF) and the Railway Medical Services (RMS) into two verticals: The Indian Railways Technical Service and the Indian Railways Logistics Service
- a third service cadre like Indian Railways Management Service must be put in place
- Bureaucratic reform — or the proposal to unify cadres — might well be a desired objective.
- To adopt a policy of a unified or a two-cadre system with retrospective effect
- The long-awaited plan of setting up an independent tariff and safety regulator — called the **Rail Development Regulator** — remains to be put to effect
- A **Corporate Accounting System** — to replace the conventional accrual-based accounting system.

Other measures:

Bibek Debroy Committee on Restructuring of Indian Railways:

- Need for the creation of separate tariff regulator so as to keep railway away from politics.
- Railway's recruitment should be done by single entity instead of UPSC, SSC
- Further needs to decentralize railway operation to increase efficiency.
- Need to decrease cross subsidization by keeping a balance between freight and passenger fare.
- Railway budget should be merged with the annual budget.
- Shifting towards online procurement and auctioning.

Conclusion:

- Indian Railways needs to learn from ISRO in target driven goals, team spirit, Research and Development, transparency, speed and active collaboration with the private sector. "Process, structural and cultural reforms" are the needs of the hour to resuscitate the IR.

Q) Examine how 'smart grids' can be a solution to India's power woes. Discuss the challenges and issues involved in its implementation. (250 words)

[livemint](#)

Why this question:

The question is to examine the concept of smart grids.

Key demand of the question:

The answer must discuss the concept of smart grids, the challenges and issues involved in implementing the same and in what way it can address the power woes of the country.

Directive:

Examine – When asked to 'Examine', we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Discuss in brief the current power scenario of the country with some statistical data.

Body:

Explain that Smart grid (SG) is emerging as a new facet of power industry. It incorporates numerous advanced technologies to deal issues prevailing with conventional electric networks. Though capable to resolve many of these issues, SG is still facing challenges in deployment. These challenges are associated with adaption of emerging technologies, socio-economic issues, lack of policies and awareness.

Conclusion:

Conclude with what needs to be done and how the concept can be put to use effectively to deal with the power problems of the country.

Introduction:

- Smart grid is an electricity grid that is used to deliver electricity using two way technology to enable communication between consumers and utility.
- Smart grid manages electricity demand in a reliable, efficient and sustainable manner.
- In May 2015, Government approved the National Smart Grid Mission (NSGM) -an institutional mechanism for planning, monitoring and implementation of policies and programs related to Smart Grid activities.

**Body:****Potential of Smart Grids:**

- A smart grid involves a network of sub-stations, transformers, and electric lines that help in delivering electricity from power plant to business offices and homes.
- Similar to the internet, a smart grid also involves the use of computers, automation, controls, and new technologies working in conjunction with each other.
- The key advantage of smart grid technology is its ability to create stability between electricity demand and supply.
- The smart grid enables increased, predictability and control of generation and demand through consumer involvement, thus bringing flexibility in both generation and consumption, enabling the utility to better integrate intermittent renewable generation and reducing costs of peak power.
- A smart grid is cost-effective, responsive, and engineered for reliability of operations.

Challenges and issues involved in its implementation:

- **Policy and regulation:** The current policy and regulatory frameworks were typically designed to deal with the existing networks and utilities.
- **High capital and operating costs:** Capital and operating costs include large fixed costs linked to the chronic communications
- **Benefits are constrained by the regulatory framework:** When calculating the benefits, organizations tend to be conservative in what they can gather as cash benefits to the shareholders. For example, in many cases, line losses are considered to be put onto the customer and as a result any drop in losses would have no net impact on the utility shareholder.
- **Technology maturity and delivery risk:** Technology is one of the essential constituents of Smart Grid which include a broad range of hardware, software, and communication. In some cases, the technology is well developed; however, in many areas the technologies are still at a very initial stage of development and are yet to be developed to a significant level.
- **Lack of awareness:** Consumer's level of understanding about how power is delivered to their homes is often low.
- **Access to affordable capital:** Funds are one of the major roadblocks in implementation of Smart grid.
- **Cyber security and data privacy:** With the transition from analogous to digital electricity infrastructure comes the challenge of communication security and data management; as digital networks are more prone to malicious attacks from software hackers, security becomes the key issue to be addressed, concerns on invasion of privacy and security of personal consumption data arises. The data collected from the consumption information could provide a significant insight of consumer's behavior and

Way forward:

- Creating frameworks that allow risk to be shared between customers and shareholders, so that risks and rewards are balanced providing least aggregate cost to the customer.
- Consumers should be made aware about their energy consumption pattern at home, offices.
- Policy makers and regulators must be very clear about the future prospects of Smart Grids.
- Utilities need to focus on the overall capabilities of Smart Grids rather than mere implementation of smart meters. They need to consider a more holistic view.

Conclusion:

- Indian utilities are still lagging far behind when compared to other countries. Smart Grids will play a vital role to help utilities in accomplishing this mission.
- So, the utilities will need to invest heavily in new hardware, software, business process development, and staff training.
- Further there would be high investment in home area networks and smart appliances by the customers. Achieving the broader view of Smart Grid will require complex task prioritization and right set of policies and regulations to be in place.

Q) Infrastructure is the backbone of India Economy. Discuss the measures taken by the government to boost infrastructure development in the recent Budget. (250 words)

[Economictimes](https://economictimes.com)

**Why this question:**

The question aims to analyse the role played by infrastructure development in growth and development of the country.

Key demand of the question:

The answer must analyse the measures taken by the government to boost infrastructure development in the recent Budget.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:**Introduction:**

Begin with brief write up on present state of infrastructure in India.

Body:

Discussion should include the following:

Infrastructure sector is a key driver for the Indian economy. The sector is highly responsible for propelling India's overall development and enjoys intense focus from Government for initiating policies that would ensure time-bound creation of world class infrastructure in the country.

Discuss the recent allocations made in the Budget and explain the significance.

Conclusion:

Conclude with way forward.

Introduction:

- Infrastructure is a key driver of the overall development of Indian economy. It is seen that investments in infrastructure equal to 1% of GDP will result in GDP growth of at least 2% as infrastructure has a “**multiplier effect**” on economic growth across sectors.
- The recent headway made in developing transport infrastructure will prove to be the biggest enabler for growth.

Body:**Significance of Infrastructure expansion:**

- Infrastructure development helps in **poverty reduction** due to its high employment elasticity leading to huge job creation capabilities.
- It also has the **trickle-down effect** as better transportation infra can lead to access to education, health and other basic necessities.
- **Increasing the manufacturing growth** as there is better connectivity, easier movement of goods and services, facilitating private investments
- **It reduces the regional and inter-state disparities** and leads to a balanced economic growth by regional equality.
- Infra sector **has huge spill-over effects** on other sectors of economy. It **has money-multiplier** effect too.
- **Better quantity and quality of infrastructure** can directly raise the **productivity of human and physical capital** and in turn growth of nation

Measures in recent budget to boost infrastructure:

- National Common Mobility Card: India's first indigenously developed payment ecosystem for transport, based on National Common Mobility Card (NCMC) standards.
- **Ease of Travelling:** Inter-operable transport card runs on RuPay card and would allow the holders to pay for bus travel, toll taxes, parking charges, retail shopping.
- **Roadways:**
 - Massive push given to all forms of Physical Connectivity via: Bhartamala (road and highways project) and Sagarmala projects (national water port development connectivity scheme), Pradhan Mantri Gram Sadak Yojana (PMGSY), Jal Marg Vikas and UDAN Schemes, Industrial Corridors and Dedicated Freight Corridors.
 - State road networks to be developed in 2nd phase of Bharatmala project.
 - National Highway Programme (NHP) to be restructured to ensure a National Highway Grid, using a financeable mode



- **Waterways:**
 - **Jal Marg Vikas Project:** Under it Navigational capacity of Ganga to be enhanced through multi modal terminals at Sahibganj and Haldia and a navigational lock at Farakka by 2019-20.
 - **Ganga Waterways:** 4 times increase in next 4 years estimated in cargo volume on Ganga, leading to cheaper freight and passenger movement and reducing import bill.
- **Railways:**
 - For Railway Infrastructure during 2018-2030, Rs.50 lakh crore investments is needed.
 - Public-Private-Partnership (PPP) proposed for development and completion of tracks, delivery of passenger freight services and rolling stock manufacturing.
 - 657 kilometres of Metro Rail network has become operational across India.
- **e-vehicles:**
 - Outlay of Rs. 10,000 crore for 3 years approved for Phase-II of FAME (Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles) Scheme
 - Upfront incentive proposed on purchase and charging infrastructure, to encourage faster adoption of Electric Vehicles (EV).
 - Under FAME Scheme only advanced-battery-operated and registered e-vehicles to be incentivized
- **Aviation:**
 - Policy interventions to be made for development of Maintenance, Repair and Overhaul (MRO), to achieve self- reliance in aviation segment
 - Government will be laying a Regulatory roadmap for making India a hub for aircraft financing and leasing activities from Indian shores.
- **Power:**
 - To be provided to states at affordable rates ensured under 'One Nation, One Grid' and package of power sector tariff and structural reforms to be soon announced.
 - Undesirable duties on captive generation or open access sales for industrial as well as other bulk power consumers to be removed under Ujjwal DISCOM Assurance Yojana (UDAY).
 - Blueprints to be made available for water grids, gas grids, i-ways, and regional airports
- **Gas:**
 - Implementing HLEC (High Level Empowered Committee) Recommendations which is- Addressing low utilization of gas plant capacity due to paucity of Natural Gas;
 - Retirement of old & inefficient plants.
- **Housing:**
 - Model Tenancy Law to be finalized and circulated to all states in country
 - To promote rental housing appropriate reform measures are to be taken up
 - For public infrastructure and affordable housing on land parcels held by Central Government and Central Public Sector Enterprises (CPSEs), a joint development and concession mechanisms to be used

Infrastructure financing:

- There is a need to mobilise alternative financing resources through an effective asset monetisation strategy.
- Credit Guarantee Enhancement Corporation to be set up in FY 2019-2020
- To deepen the market for long term bonds Action Plan to be put in place with focus on infrastructure
- Proposed transfer/sale of investments by FIIs (Foreign Institutional Investor)/FPIs (Foreign portfolio investment) (in debt securities issued by IDF-NBFCs) to any domestic investor within specified lock-in period
- To enable securities exchange (or stock exchange) to allow AA rated bonds as collaterals
- **Social stock exchange:**
 - Electronic fund raising platform under regulatory ambit of SEBI (Securities and Exchange Board of India)
 - Listing social enterprises and voluntary organizations
 - To raise capital as debt, equity or units like a mutual fund
- **Annual Global Investors Meet** to be organized by Government in India, using National Infrastructure Investment Fund (NIIF) as an anchor to get all three sets of global players (pension, insurance and sovereign wealth funds).
- The statutory limit for FPI investment in a company is suggested to be increased from 24% to sectoral foreign investment limit. Also, option to be given to the concerned corporate to limit it to a lower threshold
- FPIs to be permitted to subscribe to listed debt securities issued by Real estate investment trusts (REITs) and Infrastructure investment trusts (InvITs).



- **NRI-Portfolio Investment Scheme Route** is proposed to be merged with FPI Route.
- Cumulative resources garnered through new financial instruments such as InvITs, REITs as well as models like Toll-Operate-Transfer (ToT) exceed Rs. 24,000 crore

Conclusion:

- If proper effort is made in expanding education, health facilities, and physical infrastructure and improving their quality by increasing budgetary allocation and improving governance, it will go a long way in reducing poverty, improving human development, and reviving and sustaining high rates of economic growth in India.

Q) Examine the developments of Waterways in India through Joint Ventures under private participation. What are the challenges faced by the authorities in this regard? Discuss. (250 words)

Ethics by Lexicon publications

Why this question:

The question is direct and intends to evaluate the conditions of waterway transport and its contribution to the economy and transport sector of the country.

Key demand of the question:

Explain in detail the nuances of developments of Waterways in India, associated challenges, prospects and way ahead.

Directive:

Examine – When asked to ‘Examine’, we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief list down facts related to waterways in India, its prospects. India with a extensive network of rivers, canals, lakes has approximately 14500 km of navigable waterways.

Body:

Explain the following aspects –

First list down the prospects of waterways in India.

Discuss the possible challenges the sector can face – geographical, political, investments etc.

Explain the significance of public-private partnership in realizing the true potential of it.

Conclusion:

Conclude by suggesting way ahead.

Introduction:

- Rivers, lakes, canals, backwaters and reservoirs primarily constitute the source for inland waterways. A stretch of water, not part of the sea, over which craft of a carrying capacity not less than 50 tonnes can navigate when normally loaded is called navigable inland waterway.
- As per the National Waterways Act, 2016, 111 have been declared as National Waterways (NW). These waterways pass through 24 states and two union territories, with an approximate total length of 20274 km. These proposed waterways will pass through nearly 138 river systems, creeks, estuaries and related canal systems of India.

Body:

Potential of IWT in India:

- **Cost savings:**
 - Fuel and Energy Efficient: It is fuel-efficient compared to the other modes of transport, rail and road. For example, the Integrated National Waterways Transportation Grid Study states that one litre of fuel will move 24 tons through one kilometre on road, 85 on rail and 105 km on inland water transport. Further, 1 HP can 150 kg on road, 500 kg on rail and 4000 kg on water.
 - Cost of developing waterways is much lower than rail & road.
 - Reduces transportation and transition losses



- **Environment Friendly:**
 - Least fuel consumption per tonne-km
 - Carbon dioxide emission is 50% of trucks
 - Negligible land requirement as compared to rail and road transport
- **Supplementary Mode:**
 - Reduces pressure on road and rail
 - Reduces congestion and accidents on road
- **Optimal Modal Mix:** It will provide optimal modal mix by converging river transport with other modes
- **Better connectivity:** It helps create seamless interconnectivity connecting hinterlands along navigable river coasts and coastal routes. Further, riverine routes are likely to play a crucial role in connecting the north-eastern states to the mainland
- Inland Waterways hold huge potential for domestic cargo transport, cruise, tourism and passenger traffic.
- Development of inland waterways will help in the generation of job opportunities

Need for Private partnership in development of Waterways in India:

- Achieving infrastructure investment of 5% of GDP requires considerably more private sector contribution.
- Private sector participation in infrastructure delivery helps deliver tangible benefits.
- The private sector has also delivered efficiently—both on project execution as well as
- Private participation enhances public accountability.
- Public private partnership (PPPs) brings back trust in public utilities that execute them, improve service delivery and bridge resource gaps.
- Reviving the stalling private sector investments is crucial to accelerate the infrastructure build-up that India needs, aspires for, and deserves.

Challenges faced:

- **Regulatory challenges**
 - There is lack of modal integration of and detailed mapping of waterways and industrial clusters and also lack of integration of hinterland coastal shipping with international maritime traffic.
 - Lack of level playing policy (waterways were not on the national horizon for planning and connectivity for long time) among different modes of transport.
 - Lack of uniformity in legal and administrative issues as inland waterways move through more than one state.
- **Political challenges**
 - Inter-linking of rivers is a major issue, which is yet to materialize.
- **Financial challenges**
 - Under investment by the government.
 - Private sector participation in MRO is dismal.
 - Construction of dams/barrage to increase depth of navigation faces challenges of economic viability.
- **Geographical challenges:**
 - Increased siltation: Reduced navigability due to siltation, as in the Bhagirathi-Hooghly and in the Buckingham Canal.
 - Reduced waterflow: Reduced flow due to diversion of water for irrigation, for instance, in the Ganga which makes it difficult even for steamers to ply.
 - Geographical constraints: There are problems in smooth navigation because of waterfalls and cataracts, as in Narmada and Tapi.
- **Technical challenges:**
 - Inadequate depth: Lack of inadequate depth of waterways for commercial movement of cargo is a major concern. Also quality of water flow is becoming poorer progressively.
 - Inadequate air draft: Multiple bridges with low vertical clearance obstruct the passage of bigger vessels. E.g.: It is faced in NW3.
 - Shortage of IWT vessels: Due to its capital incentive nature India lacks in vessel building
 - Lack of terminals: It inhibits door-door connectivity to end users.
 - Lack of navigation infrastructure: Rudimentary infrastructure coupled with non-availability of water round the year is an impediment for operation of waterways.
 - Shortage of MRO facilities: There is severe shortage of Maintenance, Repair, Overhaul facilities for inland water transport vessels.

**Measures needed:**

- **Private Partnership:**
 - The government should focus on developing navigation, channel operation and maintenance, and external connectivity infrastructure.
 - Private players can undertake terminal development, cargo and passenger handling, and building low-draft vessels and related repair facilities.
 - Capable creditworthy public institutions are an essential prerequisite to attract private investment.
 - Expediting creation of a PPP think-tank institution as recommended by the **Kelkar committee** could help.
 - Create supply-side enablers to deepen the infrastructure financing ecosystem
 - Stalled projects need to be dealt with steadfastly to nurse private developers and financial institutions to health. Building certainty and capacity to implement the Insolvency and Bankruptcy Code will be crucial.
 - Allied guarantee instruments to strengthen bond markets and expeditious deployment of capital under the National Investment and Infrastructure Fund are facilitations that can help.
 - Transparency and effective policies will be crucial. Project-wise analysis is required to determine as to who is better placed to take care of the three essential components of each project, i.e., Build, Operate and Finance.
- **Industrial Incentives:**
 - The Government can mandate/incentivise industries in the proximity of national waterways to use this mode for a portion of their shipments.
 - Public sector entities such as Food Corporation of India, power plants and refineries can be similarly mandated.
- **Sustainable transport model:**
 - For synergy, the government can promote industrial corridors along riverbanks and foster waterways-based industrialisation.
 - This will not only ensure captive IWT cargo, but also tackle erosion of riverbanks as industries will tend to protect the land allotted to them.
- **Promoting tourism:**
 - Along with passenger terminal development, the government needs to offer financial support to ferry operators to improve safety, and facilitate insurance coverage.
 - The Centre and States need to join hands to package and market river tourism in a big way to trigger a virtuous cycle.

Conclusion:

- Thoughtful policies and infrastructure development using the PPP model can give a boost to the cheapest transport mode.
- A holistic and concerted effort can change India's transportation landscape, de-congest arterial roads, and even improve quality of life across geographies.

Q) National urban transport policy highlights on moving people instead of moving vehicles. Discuss critically the success of various policies of the government in this regard. (250 words)

Why this question:

The question intends to evaluate the policies of the government with respect to urban transport and in what way such policies have been successful in achieving the mandate of moving people and not just vehicles.

Key demand of the question:

The answer must discuss the vision of the National Urban Transport Policy (NUTP) and in what way its ambitions are in the right direction. Discuss various government policies in this direction.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.



Structure of the answer:

Introduction:

Begin with brief introduction of the National Urban Transport Policy .

Body:

Discussion should include the following:

The policy is to be critically analyzed vis-a-vis its achievement, challenges and various plans of the government.

Provide for a detailed perspective of public transport, explain that the need of the hour is to emphasize more on the movement of public transport and its facilitation; whereas, the government makes attempt for smoothening the roads and facilitation of vehicles, not necessarily the public transports.

List down government policies and programmes in this direction with recent examples.

Conclusion:

Conclude with way forward.

Introduction:

- The Government formulated a National Urban Transport Policy (NUTP) in April, 2006 which envisages safe, affordable, quick, comfortable, reliable and sustainable urban transport systems, establishment of quality focused multi-modal public transport systems that are well integrated, providing seamless travel across modes, land use transport integration, introducing intelligent transport systems for traffic management etc.

Body:

- The objective of this policy is to ensure safe, affordable, quick, comfortable, reliable and sustainable access for the growing number of city residents to jobs, education, recreation and such other needs within our cities.

The positive impact of the policy can be seen in more number of people using public transport.

- Encouraging integrated land use and transport planning in all cities so that travel distances are minimized and access to livelihoods, education, and other social needs, especially for the marginal segments of the urban population is improved, however the interest of every section and region of the society should be addressed.
- Bringing about a more equitable allocation of road space with people, rather than vehicles, as its main focus.
- Establishing effective regulatory and enforcement mechanisms that allow a level playing field for all operators of transport services and enhanced safety for the transport system users.
- Building capacity (institutional and manpower) to plan for sustainable urban transport and establishing knowledge management system that would service the needs of all urban transport professionals, such as planners, researchers, teachers, students,

Challenges to the policies:

- However, various strategies of the Government like BRT, JNNURM, etc have not solved many of the problems.
- **Unprecedented Transport Growth:** According to Niti Aayog, the number of registered motor vehicles has increased from 5.4 million in 1981, to 210 million in 2015. This rapid growth in demand in the absence of widespread public transport system has caused a rapid increase of private car ownership in India.
- **Inadequate Public Transport:** According to government data, there are about 19 lakh buses in the country and only 2.8 lakh of them are run either by state transport undertaking or under stage carriage permits.
- Further, a CSE study points out that the share of public transport is expected to decrease from 75.5% in 2000-01, to 44.7 per cent in 2030-31, while the share of personal transport will be more than 50%
- **Urban Pollution:** According to a WHO study 14 out of the top 15 most polluted cities in the world belong to India. Vehicular pollution has been one of the major contributors to rising urban air pollution in Indian cities along with other factors such as construction activity, road dust and industrial activity.
- **Urban Congestion:** Major Indian cities like Delhi, Mumbai, Kolkata and Bengaluru are ranked among world's most congested cities. For example: Average speed for vehicles in Bengaluru is reported as 17 km/h. These high levels of congestion have huge economic implications in the form of reduced productivity, fuel waste, and accidents. Further, there is an acute shortage of parking spaces both on and off the streets in the urban centres.
- **Road safety:** Traffic injuries and fatality: According to the Report 'Road Accidents in India-2016', road accidents in India have decreased by around 4.1% in 2016 from 2015. However, fatalities resulting from these accidents have risen by about 3.2%. The major reasons for traffic crashes include poor quality of roads, poor traffic management, unsafe and overcrowded vehicles and unsafe driving behaviour.
- **Equity Issues:** Unplanned urbanization in India has led to gentrification (as per upper and middle socio-economic class) of city centres and lower income groups are forced to live in peripheral suburbs which have increased their cost and time they allocate to commute. Most of the lower income groups and urban poor fail



to afford private transport and even public transport are high for them. For example, a CSE study ranks Delhi Metro as the second most unaffordable metro (after Hanoi in Vietnam) with lower income group people spending nearly 22% of their monthly transport on Delhi Metro fares.

- **Mobility for women:** Safety or the lack thereof, is the single biggest factor constraining women's mobility. According to Action Aid UK, 79% of women in major Indian cities reported being harassed on streets.

Way forward:

- To address the institutional challenges there is a need for better cooperation among different transport agencies, departments, and ministries as well as better coordination of transport and land-use policies. Further, there should be adequate funding to address various issues plaguing public transport infrastructure
- To address the issues of urban congestion and urban air pollution, it is important to augment mass and share transit capacity and discourage use of private cars by enforcing restraint measures through parking policy, low emissions zones approach, tax measures and congestion pricing.
- Further, policies toward enhancing public transport should promote inclusive access to mobility.
- Well engineered, safe infrastructure for travel should be ensured. Further, there is an urgent need to address the issue of low woman mobility by ensuring women safety through gender-sensitive transport policies, dedicated seats/ coaches and emergency helplines.
- There should be focus on enhancing non-motorised transport. Focus should be to encourage use of non-motorised transport for short distances. Further, Pedestrian zones, bike lanes should be made to ensure safety to commuters. For example, well designated Bike-lanes and bike-sharing solutions have promoted use of bicycles as a mean of transport in cities like Amsterdam and Paris.
- Commuters should be provided with multiple modes of connectivity. To ease out travelling, a single smart card can be provided. For example, London's Oyster "smart" card enables a commuter to change from one mode to another with minimal loss of time or effort.

Conclusion:

- There is a need for more equitable allocation of road space with people, rather than vehicles. Besides intelligent transport systems should be introduced and institutional mechanism for enhanced coordination between agencies and between agencies and people should be established.
- There is a need for 3C Framework (Clean, Convenient and Congestion free) for transforming mobility in India

Q) What do you understand by a low carbon transport system ? Discuss the prospects India holds in transitioning to a low carbon transport system. (250 words)

The hindu

Why this question:

The question is based on the theme of low carbon transport system and significance of the same.

Key demand of the question:

The answer must discuss in detail the prospects of having a low carbon transport system and the positive effects of it on the economy, environment and other aspects of the country.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Define what is low carbon transport system.

Body:

Explain the following dimensions in detail:

What is low carbon transport?

What can humans do to be sustainable in transportation?

Is public transport sustainable?

Why is sustainable transport important?

Explain how all of it rests on accessing public service, choosing rapid transit over car driving and supporting electric vehicle transition etc.

Discuss Indian scenario and what needs to be done.

Conclusion:

Conclude with way forward.

**Introduction:**

- Low carbon transport system can be defined as mobility that results in substantially lower levels of carbon emissions and can be considered as the ultimate goal for transport policy, planning as well as research.
- The idea of low carbon transport system rests on accessing public service, choosing rapid transit over car driving and supporting electric vehicle transition.
- **Global Carbon Project** reports that India's carbon emissions are rising more than two times as fast as the global rise in 2018.

Body:**Need for low-carbon transport system in India:**

- **Urbanisation:** With the exponential growth of the population, need for transportation arises, where present transportation is mostly relying on fossil fuels, so the need for low-carbon transportation is imminent.
- **Economic growth:** Cities are referred to as the "engines of economic growth". Despite having only about 30% of the total population, nearly 62-63%, of India's Gross Domestic Product (GDP) comes from the urban areas. With increasing growth in future, there is a need for low-carbon growth.
- **Pollution:** As per a WHO study, fourteen out of the top fifteen most polluted cities in the world belong to India. Polluted air significantly reduces the quality of life and increases the risk of diseases such as lung cancer, stroke, heart disease, and chronic bronchitis.
- **Losses:** As per the World Bank, India's welfare losses due to air pollution are currently estimated at 7.7% of GDP (PPP adjusted). By going low carbon emission vehicles huge amount of expenditure will be saved on pollution related health problems.
- **Congestion:** As per a WEF study, the number of Million-plus urban agglomerations has increased from 35 (2001) to 53 (2011). By 2030, the number is expected to grow to 87. Major Indian cities are now consistently ranked amongst the world's most congested cities. These high levels of congestion have huge cost in the form of reduced productivity, fuel waste, and accidents.
- **Two-wheelers:** The two-wheeler sales in India have grown at a CAGR of ~8% during FY14-18 period with FY18 witnessing a 14.8% Year-on-Year growth. The faster growth in two-wheeler sales is mainly due to rising income levels, growing infrastructure in rural areas and rising trend of scooterization.
- **Discretionary spending:** As Indian economy continues to grow at fastest pace the disposable income in India is also witnessing rapid improvement, which in turn is leading to faster rise in discretionary spending. This led to increase in purchase of premium vehicles. Premium vehicles run on more fuel per kilometer, so there is need to improve the fuel efficiency in this segment.

Prospects for India:

- Reducing the CO2 emissions of road transport leverages multiple co-benefits, for example improving air quality and increasing physical activity, which are critical for well-being, particularly in urban areas.
- Prevent Premature Deaths.
- The economic cost associated with mortality from air pollution is large, amounting to several % of GDP for many countries which can be addressed through a low carbon transport system.
- It provides strong economic development.
- Decreased Local Environment Damages.
- Low-carbon transport can improve energy security for individuals, businesses and national economies.

Challenges involved towards transition to LCTS:

- The way cities are built and the design of public transit are critical for low-carbon mobility systems.
- Unprecedented Transport Growth, i.e. rapid growth in demand in the absence of widespread public transport system has caused a rapid increase of private car ownership in India.
- Gaps in government Laws and regulations.
- Poor Institutional Framework.
- Human Resource Challenges which is Lack of urban transport skills amongst city and state officials is a major challenge in effectively implementing transport project.

Measures needed:

- Mayors and Town planners should organise cities around public transport and cycling, thereby improving mobility for many, while limiting car use.
- Uptake of non-motorised transport which can be a sweet spot of sustainable development, resulting in both lower emissions and better public health.
- The expansion of public transport in the form of large capacity buses, light rail transit, and suburban rail or metro is a feasible option for transport sector.



- India should double down on its strategy to transition to **electric two and three-wheelers**.
- Use of communication and information technologies can help avoid or reduce the need to travel.
- City managers should ensure that existing urban areas provide short routes and fast access to schools, hospitals and jobs.
- **NITI Aayog Recommendations** which calls for a 3C Framework (Clean, Convenient and Congestion free) for transforming mobility in India.

Conclusion:

- India is one of the world's largest producers and consumers in two- and three-wheelers and Indian companies can take a leading role in switching to electric vehicles. This will also help in transforming India's vision of 'Make in India'.
- Providing access to public service, choosing rapid transit over a car driving in cities and supporting the rise of electric two and three-wheelers will help drive India to a modern and low-carbon transport system fit for the 21st century.

Q) Discuss the critical role that development of the Blue Economy can play in nation building. Explain the prospects with possible challenges in implementation of the same. (250 words)

[Indianexpress](https://www.indianexpress.com)

Why this question:

The article talks about the mention of blue economy in the recent budget that was passed by the parliament.

Key demand of the question:

The answer must bring out the significance, prospects and potential the blue economy holds for India.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Begin with brief intro on what you understand by blue economy.

Body:

Discussion should include the following:

The concept was introduced by Gunter Pauli in his 2010 book- "The Blue Economy: 10 years, 100 innovations, 100 million jobs".

It is the sustainable use of ocean resources for economic growth, improved livelihoods and jobs, and ocean ecosystem health.

It advocates the greening of ocean development strategies for higher productivity and conservation of ocean's health.

List down the possible merits of blue economy.

What are the policies and programmes that are required to be undertaken to make the blue economy contribute to the GDP (take hints from the article.)

Conclusion:

Conclude with way forward.

Introduction:

- "Blue Economy" refers to strategic and sustainable use of Marine Resources for the development of Economy and the well-being of human.
- **Gunter Pauli's book, "The Blue Economy: 10 years, 100 innovations, 100 million jobs"** (2010) brought the Blue Economy concept into prominence. It offers "Green Approach" to meet the aspirations of mankind.
- India is endowed with a vast coastline of approximately 7500 Km and hence better placed to harness the "potential of oceans" – **with an Exclusive Economic Zone (EEZ) of 2.02 mn. sq.km**. It is an upcoming **sunrise sector**.

**Body:****Potential of Blue economy in India:**

- **Economy:**
 - Blue economy, through sustainable use of oceans, has great potential for boosting the economic growth by providing opportunities for income generation and jobs etc.
 - It can support food security, and diversification to address new resources for energy, new drugs, valuable chemicals, protein food, deep sea minerals, security etc.
 - At least 3-5% of global GDP is derived from oceans
- **Socio-Economic Development:**
 - Blue economy presents India with an unprecedented opportunity to meet its national socio-economic objectives as well as strengthen connectivity with neighbours.
 - Blue Economy can help in focusing on livelihood generation, achieving energy security, building ecological resilience, and improving health and living standards of coastal communities.
 - Blue economy would reinforce and strengthen the efforts of the Indian government as it strives to achieve the SDGs of hunger and poverty eradication along with sustainable use of marine resources by 2030.
- **Environmental Benefits:**
 - Mangroves and other vegetated ocean habitats sequester 25 percent of the extra CO₂ from fossil fuels, i.e., Blue Carbon.
 - Protection of coastal communities from disasters like floods and storms.
 - A Sustainable Blue Economy can help to achieve commitments under UN's Sustainable Development Goals 2030, Paris climate agreement 2015 and the UN Ocean Conference 2017
- **Renewable Energy:**
 - Sustainable marine energy can play a vital role in social and economic development.
 - As energy sources on the surface are limited, in the near future the dependency on marine resources will increase, which will require more human resource to be deployed in the field of environment engineering and marine resource protection
- **Mineral Wealth:**
 - According to ISA there are vast reserves of Poly-metallic Nodules, sulphides, cobalt rich ferro-manganese crust (rich in cobalt, bismuth, iron, lead, platinum).
 - ISA has notified two major areas "Clarion-Clipperton fracture zone" and Central Indian Ocean Basin.
 - India has already signed a contract and entered in the league with Japan, USA, China
- **Fisheries:**
 - Sustainable fisheries can generate more revenue, more fish and help restore fish stocks.
- **Maritime Transport:**
 - Over 80% of international goods traded are transported by sea.
 - Marine services sector could serve as the backbone of its blue economy and help India become 10 trillion dollar economy by 2022.
 - Indian Ocean is a major conduit of trade with as much as 80% of global oil trade happening through it.
- **Tourism:**
 - Ocean and coastal tourism can bring jobs and economic growth.
- **Climate Change and Bio-diversity:**
 - Oceans are an important carbon sink (blue carbon) and help mitigate climate change.
 - Oceans protect biodiversity, keep the planet cool, and absorb about 30% of global CO₂ emissions.
 - Oceans cover three-quarters of the Earth's surface, contain 97% of the Earth's water, and represent 99% of the living area on the planet.
- **Waste Management:**
 - Better waste management on land can help oceans recover.

Challenges associated:

- **Threat of sea borne terror:**
 - Piracy and armed robbery, maritime terrorism, illicit trade in crude oil, arms, drug and human trafficking and smuggling of contraband etc.



- **Natural Disasters:**
 - Every year tsunamis, cyclones, hurricanes typhoons etc leave thousands of people stranded and property worth millions destroyed.
- **Man-Made disasters:**
 - Oil spills, climate change continue to risk the stability of the maritime domain.
- **Impact of climate change:**
 - Threats of both slow-onset events like sea-level rise and more intense and frequent weather events like cyclones.
 - Long-term climate change impacts on ocean systems like changes in sea temperature, acidity, and major oceanic currents.
- **Marine pollution:**
 - In form of excess nutrients from untreated sewerage, agricultural runoff, and marine debris such as plastics.
 - Deep sea mining can cause long term irreversible ecological damage to marine ecosystem.
- **Geopolitical issues:**
 - Geopolitical tussle between in various regions like South China Sea, Indian Ocean Region etc. and undermining International Laws like UNCLOS limits the countries from achieving the full potential of Blue Economy.
- **Overexploitation of marine resources:**
 - Illegal, unreported, and unregulated extraction of marine resources.
 - FAO estimates that approximately 57 percent of fish stocks are fully exploited and another 30 percent are over-exploited, depleted, or recovering.
- **Unsustainable development near marine areas:**
 - Physical alterations and destruction of marine and coastal habitats & landscapes largely due to coastal development, deforestation, & mining

Way Forward:

- India should look to adopt the sustainable approach of balancing economic benefits with sustainability for meeting the broader goals of growth, employment generation, equity and protection of environment.
- We need to come up with technology to explore the minerals deep down at seabed.
- India must focus on **marine ICTs, and transport (shipping) and communication services**, and the **creation of a knowledge hub** for marine research and development.
- An **effective response mechanism to address humanitarian crises and natural disasters** should be made for the evolving Indian Ocean security strategy.
- India should not look at its oceans as just water bodies, but as global stage for continued economic, social, and cultural dialogue.
- Ever increasing marine pollution must be abated and India's vow to curb plastic pollution must be pursued relentlessly.
- Tackling the Global warming and submergence of low lying islands as part of Paris Climate deal agreement and initiatives like FIPIC.

Q) Designing a sustainable and inclusive transport systems in urban India is the need of the hour. Elucidate. (250 words)

[Livemint](#)

Why this question:

The article talks about Carpooling as an idea that needs regulatory intervention in India. Forcing us to think over the need to design a sustainable and inclusive transport systems in urban India.

Key demand of the question:

The answer must provide for detailed analysis of inclusive and sustainable urban transport system in India.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.



Structure of the answer:

Introduction:

Discuss the context of the question briefly.

Body:

The answer must capture the following aspects –

First highlight the benefits of having such a system; Densification reduces mobility needs and enhances public transport. Large cities use public transport more, but lack non-motorized transport. The amount of transport increases with city size (by population). The household income is the single largest determinant of the amount of transport. Indian cities need investments in public and non-motorized transport infrastructures and disincentives of private modes.

Then discuss need for inclusive and sustainable urban transport, what needs to be done to achieve the same.

Suggest solutions ranging from carpooling, mass rapid transport system etc.

Conclusion:

Conclude with way forward.

Introduction:

- India is a country with the second largest road network in the world. Out of the total stretch of 5.4 million km of road network, almost 97,991 km is covered by national highways.
- Traffic congestion has increased dramatically in India. Congestion and the associated slow urban mobility can have a huge adverse impact on both the quality of life and the economy.

Body:

Problems faced by Urban Transport in India:

- **Unprecedented Transport Growth:** According to Niti Aayog, the number of registered motor vehicles has increased from 5.4 million in 1981, to 210 million in 2015. This rapid growth in demand in the absence of widespread public transport system has caused a rapid increase of private car ownership in India.
- **Inadequate Public Transport:** According to government data, there are about 19 lakh buses in the country and only 2.8 lakh of them are run either by state transport undertaking or under stage carriage permits.
- Further, a CSE study points out that the share of public transport is expected to decrease from 75.5% in 2000-01, to 44.7 per cent in 2030-31, while the share of personal transport will be more than 50%
- **Urban Pollution:** According to a WHO study 14 out of the top 15 most polluted cities in the world belong to India. Vehicular pollution has been one of the major contributors to rising urban air pollution in Indian cities along with other factors such as construction activity, road dust and industrial activity.
- **Urban Congestion:** Major Indian cities like Delhi, Mumbai, Kolkata and Bengaluru are ranked among world's most congested cities. For example: Average speed for vehicles in Bengaluru is reported as 17 km/h. These high levels of congestion have huge economic implications in the form of reduced productivity, fuel waste, and accidents. Further, there is an acute shortage of parking spaces both on and off the streets in the urban centres.
- **Road safety:** Traffic injuries and fatality: According to the Report 'Road Accidents in India-2016', road accidents in India have decreased by around 4.1% in 2016 from 2015. However, fatalities resulting from these accidents have risen by about 3.2%. The major reasons for traffic crashes include poor quality of roads, poor traffic management, unsafe and overcrowded vehicles and unsafe driving behaviour.
- **Equity Issues:** Unplanned urbanization in India has led to gentrification (as per upper and middle socio-economic class) of city centres and lower income groups are forced to live in peripheral suburbs which have increased their cost and time they allocate to commute. Most of the lower income groups and urban poor fail to afford private transport and even public transport are high for them. For example, a CSE study ranks Delhi Metro as the second most unaffordable metro (after Hanoi in Vietnam) with lower income group people spending nearly 22% of their monthly transport on Delhi Metro fares.
- **Mobility for women:** Safety or the lack thereof, is the single biggest factor constraining women's mobility. According to Action Aid UK, **79% of women in major Indian cities reported being harassed on streets.** Overcrowding in public transport adds to insecurity and safety issues with a large number of women complaining about harassment in public transport across major Indian cities like Delhi and Mumbai.

Measures needed:

- Any solution if expected to be successfully implemented will definitely require effort and planning on a huge scale. This is especially for when we are coming up with plans which can reach the entire country.



- **Corruption will have to be curbed**, and it will be extremely vital that the raw material is of the highest quality are used for the longevity and strength of the roads.
- **Road pricing system**: people should be charged based on the length of the road and the duration for which they use the road. This will be difficult to implement and will require huge technological investment to become possible.
- **Improvement in public transport** and additional schemes like BRT. The Bus Rapid Transport is implemented in some cities like Pune, and it can be very helpful if implemented correctly.
- People should **try and use carpooling and bike pooling** as much as possible. Use of bicycles for smaller distances also improves individual health along with reducing pollution and road congestion.
- **Strict and stringent measures against traffic violators**. A regulation in the traffic rules and fines levied for breaking them.
- **Metro** can play a huge role in improving the traffic issues to a great extent. If Nagpur metro becomes successful, it will pave the way for implementation in other cities as well which can be very beneficial.
- **Increase in the use of CNG and electric vehicles** and providing relief to those who use the same.
- **Well engineered, safe infrastructure** for travel should be ensured. Further, there is an urgent need to **address the issue of low woman mobility by ensuring women safety** through **gender-sensitive transport policies**, dedicated seats/ coaches and emergency helplines.
- There should be **focus on enhancing non-motorised transport**. Focus should be to encourage use of non-motorised transport for short distances. Further, Pedestrian zones, bike lanes should be made to ensure safety to commuters. For example, well designated Bike-lanes and bike-sharing solutions have promoted use of bicycles as a mean of transport in cities like Amsterdam and Paris.
- Commuters should be provided with **multiple modes of connectivity**. To ease out travelling, a single smart card can be provided. For example, London's Oyster "smart" card enables a commuter to change from one mode to another with minimal loss of time or effort.

Conclusion:

- It's time that city leaders and officers in India recognize the benefits of sustainable mobility and incorporate well-defined strategies and policies into their own public agendas.
- The future of their economies and their citizens depends on it.

Topic: Science and Technology- developments and their applications and effects in everyday life

Q) What do you understand by 5G technology? What are its benefits? Explain the various challenges involved in adopting the same. (250 words)

Reference

Economictimes

Why this question:

The question is in the backdrop of recent debates over the Huawei's role in the 5G network rollout in India continues. This comes at a time when the government has made its intentions clear to start with the 5G trials soon.

Key demand of the question:

Explain in detail the 5G technology, its benefits and applications and what are the challenges currently India is facing in implementing it.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Explain in brief what you understand by 5G technology.

Body:

Explain the following points –

5G – It is the next generation cellular technology that will provide faster and more reliable communication with ultra-low latency.

Its benefits – It will revolutionize the mobile experience; consumers will be able to download data heavy content such as 8K movies and games with better graphics in just a few seconds. But once 5G



becomes commercial, users will be required to change their current devices in favor of 5G-enabled ones.

However, it is likely that the primary use of the technology will go beyond delivery of services on personal mobiles devices.

Discuss the various fields of applications for such technology.

Discuss the various challenges being faced in incorporating the technology in India.

Conclusion:

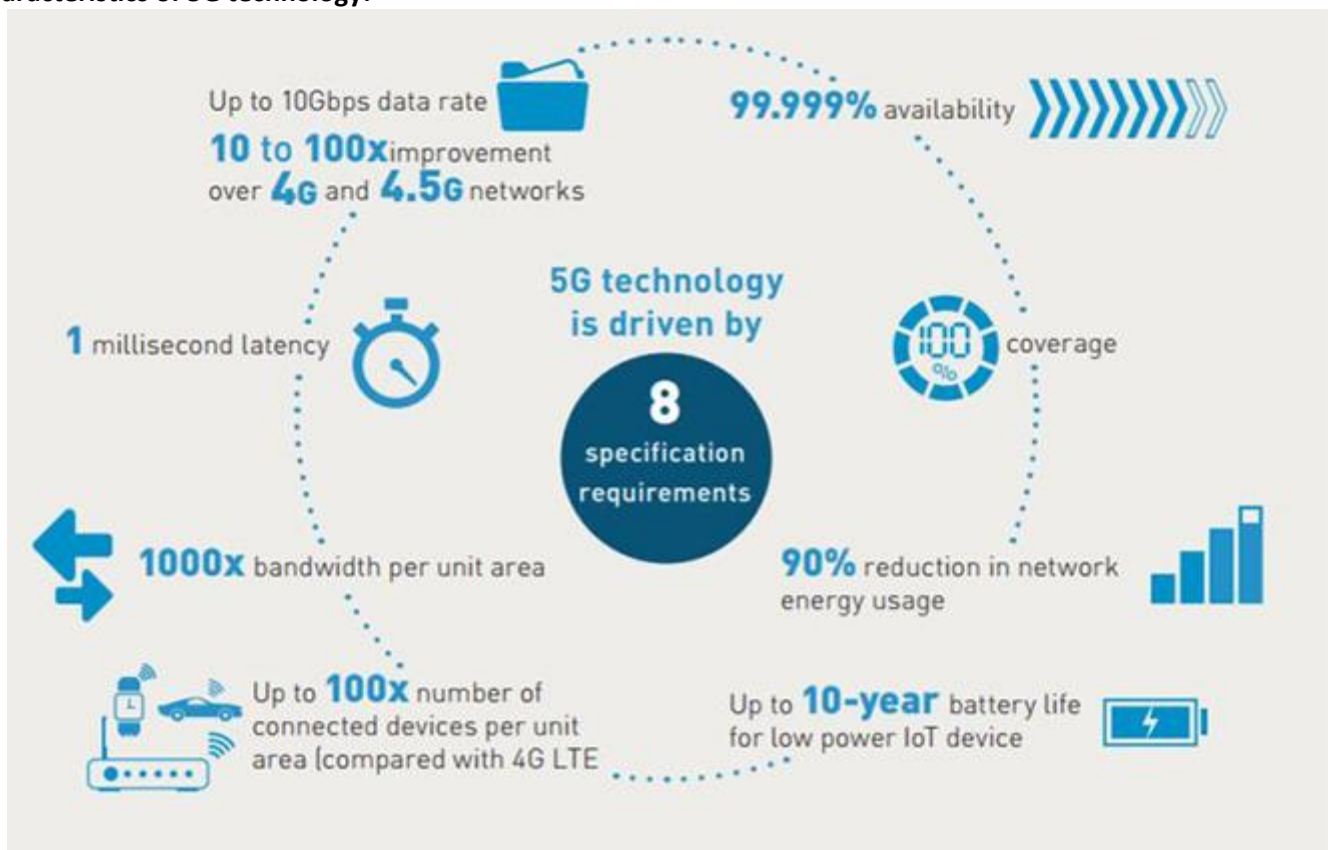
Conclude by reasserting the significance of such a technology.

Introduction:

- 5G is **the fifth generation mobile network**. It's a unified platform which is much more capable than previous mobile services with more capacity, lower latency, faster data delivery rate and better utilisation of spectrum. The standards for the usage of 5G are defined and driven by 3rd Generation Partnership Project (3GPP).

Body:

Characteristics of 5G technology:

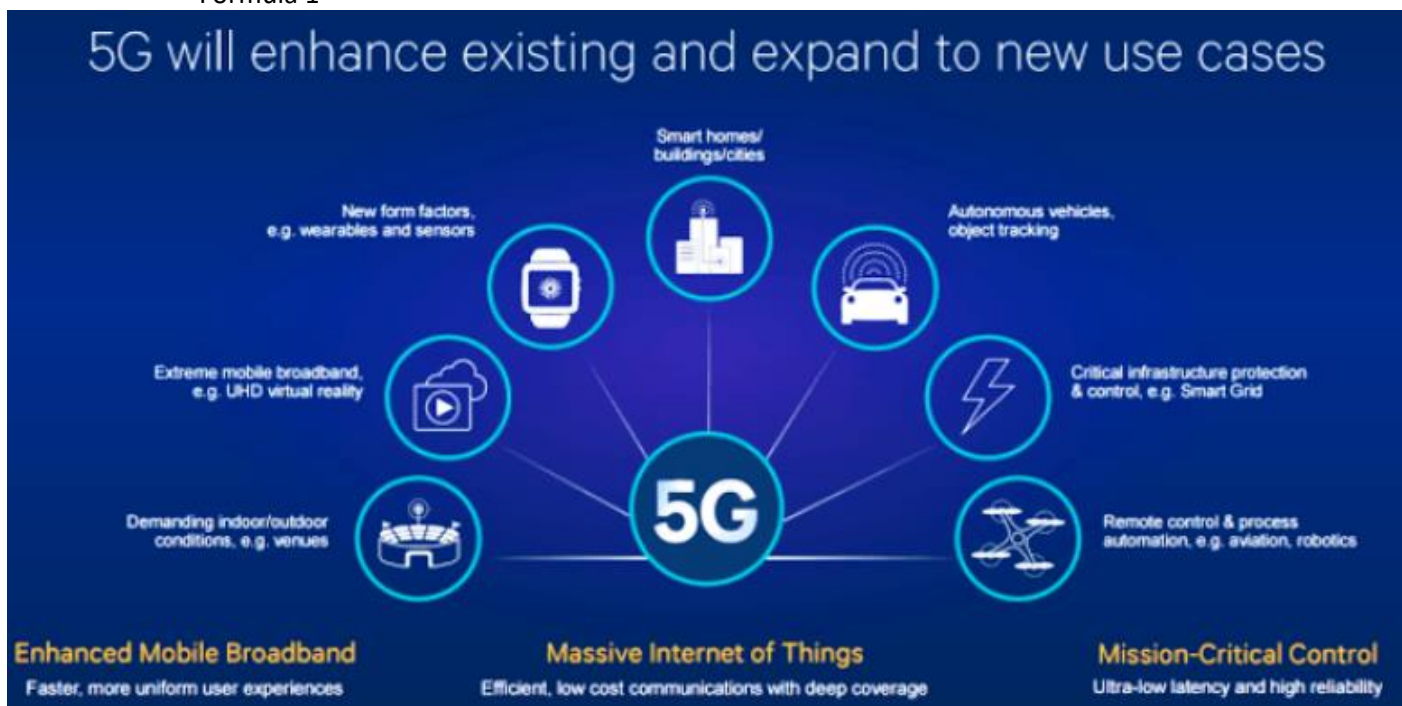


The potential advantages it offers:

- Industry 4.0:**
 - The manufacturing industry is going through a digital revolution.
 - Within the context of Industry 4.0, manufacturers are becoming more efficient through the application of automation and data exchange to their existing factory processes to enable better integrated workflows and smarter manufacturing.
 - Industrial IoT technologies are streamlining and simplifying many manufacturing processes in revolutionary ways.
- Mixed reality (MR) applications:**
 - The MR Apps comprise **augmented reality (AR) plus virtual reality (VR) apps**.
 - Beyond the consumer market (think Pokémon Go), interesting applications are also likely to be found in **industrial and medical contexts**.
 - Remote medical procedures, engineering, public safety and field-service applications are all strong use case opportunities for the application of low latency 5G services.
- Sports and entertainment:**
 - A combination of VR and AR with ultra high-fidelity enabled by 5G could transform the way fans interact in these events.



- Motorsports is ideal for VR in particular: equipped with their mobile device or headset, fans could be served information like lap or technical information about cars as they race on the track in a sport like Formula 1



- **Fixed wireless access:**
 - Fixed wireless access could also be used to bring high bandwidth digital services to under-served rural areas.
 - Mobile operators will then be able to compete with wireline, satellite and cable companies, offering new revenue streams and faster RoI.
- **Autonomous vehicles:**
 - The idea that much of the car, if not all of it, is controlled not by the driver but by technology.
 - 5G is critical to realize this as it will offer the connectivity and speed needed to deliver vast amounts of data to one another as well as other objects simultaneously.
 - 5G can provide a completely seamless mobile experience is a must so that cars can stay constantly connected.

Challenges present to adapt to 5G are:

- **Frequency allocation:** Indian operators have **far less spectrum** in comparison to international operators. The **high investment cost** which makes telecom companies unsure about Return on Investment.
- **Network investment:** In India, the telecom sector is **facing capital augmentation issues** which need to be resolved.
- **Non-availability of funds for investment:** Many of the Indian operators are also **weighed down by debt**.
- **Regulatory restrictions:** Faster rounds of new technology introduction when prior technology investments have not been recouped add further complexity.
- **Technical Challenges:** Designing IT architecture that can be deployed globally, while still allowing for localized technology to cater for different regions is a challenge.

Way forward for India:

- Need to align Digital India with 5G technology.
- Incentivize design and manufacture of 5G technologies, products and solutions in India.
- Allocate funds and incentivise local technology and telecom firms to develop their internal capacities which would in turn help 5G technology succeed in the country
- Promote 5G start-ups that enable this design and manufacturing capabilities.
- Promote generation of IPR backing the above designs.
- Manufacture of 5G chipsets, this may require massive investments.
- Appropriate test-beds and technology platforms to enable and help Indian technical ecosystem to have an edge in 5G.
- Accelerated deployment of next generation ubiquitous ultra-high broadband infrastructure with 100% coverage of 10 Gbps across urban India and 1 Gbps across Rural India.



- Coverage, reliability, and scalability must be optimized and seamless mobile networks will require a unified management policy to ensure consistent standards

Conclusion:

- The **World Economic Forum** predicts that by 2023 there will be a staggering 9.1 billion mobile subscriptions.
- 5G will act as the catalyst for Digital India—a watershed moment in digital transformation.
- India is at the cusp of a next generation of wireless technology 5G. It provides an opportunity for industry to reach out to global markets, and consumers to gain with the economies of scale. It can help in better service delivery, faster access to services and deeper penetration of digital services.

Q) Discuss India's achievements in the field of Space and Technology. How far has the application of this technology helped India in its socio-economic development? Explain. (250 words)

Reference

Why this question:

India successfully launched its second moon mission Chandrayaan-2 recently from its most powerful rocket with a plan to land the rover on the unexplored lunar south pole.

Key demand of the question:

The answer must discuss in detail India's achievements in the field of Space and Technology and in what way it has impacted the socio-economic development of the country.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

write a few introductory lines about the recent achievements made by the Indian space agencies.

Body:

Discuss in detail how ISRO has achieved numerous milestones lately and has proved to harness space technology for national development. Relate how these achievements have direct link on the socio-economic development of the country.

Conclusion:

Conclude by reasserting significance of the same.

Introduction:

- India is one of the front runners in space technology. It has been hailed as one the most successful programmes. From India's first satellite Aryabhata (1975) to the development of indigenous cryogenic engine India has made significant advances with little help and no technology sharing from developed countries.
- With the multi dimensional applications space technology ensures, India is moving in the right direction.

Body:

Over the last few years, the Indian Space Research Organisation (ISRO) took giant leaps forward, one success after the other.

- **Chandrayaan 2:** India successfully launched its second lunar mission Chandrayaan-2 a week after it halted the scheduled blast-off due to a technical snag. India hopes the \$145m (£116m) mission will be the first to land on the Moon's South Pole.
- **INSAT:** The system is a network of satellites that facilitates **communication and broadcasting** across the south Asian region. It ushered in a revolution in India's television and radio broadcasting, telecommunications and meteorological sector.
- Created **Polarized Satellite Launch Vehicle (PSLV)** to make cost effective launch system. This has also increased international space collaboration by launching satellites of other nations at low costs.
- **Chandrayaan 1:** It has launched Chandrayaan 1 lunar probe mission in 2008.
- **Mangalyan:** ISRO has launched **Mars Orbiter Mission** in 2013 and created history by launching Mangalyan (mission spacecraft) into the Mars orbit in maiden attempt.
- **ASTROSAT:** It has launched first space observatory in 2015 to become fourth agency to do so after NASA, Roscosmos and ESA.



- **Scramjet:** Supersonic Combusting Ramjet has been launched by ISRO. This system works on Air-breathing Propulsion System which uses atmospheric oxygen to burn the fuel in the rocket.
- **RLV-TD:** ISRO demonstrated its **Reusable Launch vehicle** space shuttle RLV -TD to launch satellites around earth orbit and re-enter into the atmosphere.
- **104 satellites:** ISRO has created history by launching 104 satellites in one go.
- **Crew Escape module:** ISRO has test-launched Crew Escape Module paving the way for manned space mission Gaganyaan.

Besides, **NAVIC** (Indian Regional navigation satellites system) and **South Asia Satellite** are other missions which are a remarkable example of international coordination in the space arena. ISRO is preparing for its missions of **Aditya (Solar Mission)** and **Gaganyaan (Manned Space Mission)**.

Contributions to Socio-Economic Development:

- Acreage and production estimates for the principal crops such as wheat, rice, sorghum, cotton, mustard, and groundnut using Forecasting Agriculture Output using Space Agrometeorology and land based observations (FASAL). **Precision farming using IRNSS. Agro Metrological (AGROMET) Towers** to measure soil temperature, soil moisture, soil heat and net radiation, wind speed, wind direction, pressure and humidity.
- **Wasteland mapping, watershed development and monitoring as well as help in fisheries sector for augmentation of income.**
- **Survey of various mineral and natural resources** have been made possible through remote sensing.
- Management of these resources, their development conservation and formulation of various policies are affectively done with the use of information derived through remote sensing.
- It plays a vital role in **delivering cyclone warnings** and is used in search and rescue operations. Various meteorological services including information about monsoon, climate flood, cyclonic activities etc are provided through the technologies.
- It has developed **communication technology** in India.
- They have proved very useful in **spread of education**. Even in remote areas, the expertise educations have been made possible through the talk back channels of INSAT-3D satellite.
- They have helped in **environment conservation programmes** estimation of agricultural production and water resources information's.
- **Introducing telemedicine** via satellite for making speciality treatment accessible to people in remote areas of India. Places around Bangalore, Kolkata and Tripura are networked with a hub using VSAT terminals.
- The concept of "Gramsat" satellites have emerged to provide the basic requirements of villages.
- **Village Resource Centers** located at coastal tracts are being provided with near real time information on satellite derived Potential Fishing Zones (PFZ). Information pertaining to inland fisheries, aquaculture, etc., is also provided through VRCs as relevant.
- Another application of satellite communication is **Satellite Aided Search and Rescue (SAS&R)**, as a part of India's commitment to the International COSPAS- SARSAT programme for providing alerts and position location services for aircraft and ships in distress.
- Commercialization of space launching technologies by **ANTRIX** has resulted into economic gain.
- Apart from these various uses, the space programme has helped in social cultural and scientific consolidation and harmony.

Conclusion:

- Over the last four and half decades, the Indian space programme has made impressive progress through well integrated, self-reliant programs.
- Through its space technology programme, India is promoting a knowledge based society which has led to social, economic and political transformation.

Topic: Awareness in the fields of IT, Space, Computers, robotics, nanotechnology, biotechnology and issues relating to intellectual property rights.

Q) The utility of the DNA Technology (Use and Application) Regulation Bill could be of enormous abet in many areas yet bereft of safeguards. Critically analyse. (250 words)

Reference

Why this question:



The Lok Sabha has passed the DNA Technology (Use and Application) Regulation Bill, 2018 that allows regulated use of DNA technology to establish the identity of certain defined categories of persons, including offenders, suspects, and undertrials.

Key demand of the question:

The answer must explain the advantages and concerns associated with the bill.

Directive:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

Begin with brief highlights of the bill.

Body:

Discussion should include the following:

Explain what was the need for such a legislation and what is its significance.

Bring out the key features of the bill and analyse both pros and cons.

Explain the benefits such as – By providing for the mandatory accreditation and regulation of DNA laboratories, the Bill seeks to ensure that with the proposed expanded use of this technology in the country. There is also the assurance that the DNA test results are reliable and the data remain protected from misuse or abuse in terms of the privacy rights of our citizens.

Then explain the associated concerns.

Conclusion:

Conclude with need for a balanced vision towards such aspects.

Introduction:

- With DNA technology being relied upon worldwide in crime investigations, identification of unclaimed bodies, or determining parentage, India has been attempting for several years to pass legislation on use of DNA technology to support and strengthen the justice delivery system.

Body:

Key Highlights of Proposed Bill

- **Purpose:**
 - It allows law enforcement agencies to collect DNA samples, create DNA profiles and special databanks for forensic-criminal investigations. It states that all DNA data, including DNA samples, DNA profiles and records, will be only used for identification of the person and not for any other purpose.
- **DNA profiling board:**
 - It creates DNA Profiling Board (DPB) that will be final authority that will authorise creation of State-level DNA databanks, approve the methods of collection and analysis of DNA-technologies. It makes accreditation and regulation mandatory for DNA laboratories.
- **DNA banks:**
 - It allows government to set up DNA data banks across India to store profiles. These banks will maintain national database for identification of victims, accused, suspects, undertrials, missing persons and unidentified human remains.
- **Penalty:**
 - It also empowers government to impose jail term of up to 3 years and fine of up to Rs. 1 lakh on those who leak information stored in such facilities. It prescribes similar punishment for those who seek information on DNA profiles illegally.
- **Use of DNA Data:**
 - Under the Bill, DNA testing is allowed only in respect of matters listed in the schedule to the Bill (such as, for offences under the Indian Penal Code, 1860, for paternity suits, or to identify abandoned children).
- **DNA Data Bank:**
 - The Bill provides for the establishment of a National DNA Data Bank and regional DNA Data Banks, for every state, or two or more states.
 - The National Data Bank will store DNA profiles received from DNA laboratories and receive DNA data from the regional Banks.



- Every Data Bank will be required to maintain indices for the following categories of data: (i) a crime scene index, (ii) a suspects' or undertrials' index, (iii) an offenders' index, (iv) a missing persons' index, and (v) an unknown deceased persons' index.
- **Protection of information:**
 - It also ensures that the data remain protected from misuse or abuse in terms of the privacy rights of citizens.
 - Under the Bill, the Board is required to ensure that all information relating to DNA profiles with the Data Banks, laboratories and other persons are kept confidential. DNA data may only be used for identification of the person.
 - However, the Bill allows for access to information in the Data Bank for the purpose of a one-time keyboard search. This search allows for information from a DNA sample to be compared with information in the index without information from the sample being included in the index.
- **Retention of DNA Data:**
 - The Bill states that the criteria for entry, retention or removal of the DNA profile will be specified by regulations.
 - However, the Bill provides for removal of the DNA Data of the following persons:- (i) of a suspect if a police report is filed or court order given, (ii) of an undertrial if a court order is given, (iii) on request, of persons who are not a suspect, offender or undertrial from the crime scene or missing persons' index.
 - Further, the Bill provides that information contained in the crime scene index will be retained.
- **DNA Laboratories:**
 - Any laboratory undertaking DNA testing is required to obtain accreditation from the Board. The Board may revoke the accreditation for reasons including, failure to: (i) undertake DNA testing, or (ii) comply with the conditions attached to the accreditation. If the accreditation is revoked, an appeal will lie before the central government or any other authority notified by the central government.
- **Obligations of DNA Laboratories:**
 - Under the Bill, every DNA laboratory is required to perform various functions, including: (i) following standards for quality assurance in collection, storing, testing, and analysis of DNA samples, and (ii) depositing DNA samples with the Data Bank.
 - After depositing the sample for ongoing cases, the Laboratory is required to return the biological sample to the investigating officer. In all other cases, the sample must be destroyed and intimated to the concerned persons

Challenges with the bill:

- The draft statute, not only disregards the serious ethical dilemmas that are attached to the creation of a national DNA database, but also, contrary to established wisdom, virtually treats DNA as infallible, and as a solution to the many problems that ail the criminal justice system.
- This Bill fatally ignores the disproportionality of the DNA bank that it seeks to create, and the invasiveness of its purport and reach.
- It also conflates its objectives by allowing the collection of DNA evidence not only in aid of criminal investigations but also to aid the determination of civil disputes.
- Importantly, while consent is not required before bodily substances are drawn from a person accused and arrested for an offence punishable with either death or imprisonment for a term exceeding seven years, in all other cases a person refusing to part with genetic material can be compelled to do so if a Magistrate has reasonable cause to believe that such evidence would help establish a person's guilt. Therefore, there's no end to the state's power in coercing a person to part with her DNA.
- In Justice K.S. Puttaswamy (Retd) v. Union of India declared that the Constitution recognizes a fundamental Right to Privacy. But, it is unclear whether the proposed bill is compatible with the Right to Privacy or not.
- The Bill's failure to place sufficient checks on the use of DNA evidence collected in breach of the law makes the process altogether more frightening.
- The Schedule lists civil matters where DNA profiling can be used. This includes "issues relating to the establishment of individual identity." DNA testing carried out in medical or research laboratories can be used to identify an individual. It is unclear if the Bill intends to regulate such laboratories.
- The Bill requires the consent of the individual when DNA profiling is used in criminal investigations and identifying missing persons. However, consent requirements have not been specified in the case of DNA profiling for civil matters.



- DNA laboratories are required to share DNA data with the Data Banks. It is unclear whether DNA profiles for civil matters will also be stored in the Data Banks. Storage of these profiles in the Data Banks may violate the right to privacy.
- DNA laboratories prepare DNA profiles and then share them with DNA Data Banks. The Bill specifies the process by which DNA profiles may be removed from the Data Banks. However, the Bill does not require DNA laboratories to remove DNA profiles. It may be argued that such provisions be included in the Bill and not left to regulations.

Way Forward:

- DNA profiling should be undertaken exclusively for the identification of a person and should not be used to extract any other information.
- The state must show that there exists a legitimate reason for extracting DNA evidence and that the extent and scope of such extraction do not disproportionately contravene a person's right to privacy.
- To enact the law in its present form would only add a new, menacing weapon to the state's rapidly expanding surveillance mechanism. The government should not allow the benefits of science and technology to be privileged over the grave risks in allowing the unrestricted access to deeply personal material.
- Maintenance of strict confidentiality with regard to the keeping of records of DNA profiles and their use should be considered a priority.

Q) Do you agree instituting a framework which would enable full utilization of new ideas and innovation towards achieving self-reliance in defence sector is the need of the hour? Discuss the key features of Mission Raksha Gyan Shakti (MRGS) aimed in this direction. (250 words)

Reference

Why this question:

In a major boost to Mission Raksha Gyan Shakti, a MOU was signed between the Intellectual Property Facilitation Cell (IPFC), Department of Defense Production, Ministry of Defense and National Research Development Corporation (NRDC), Ministry of Science and Technology.

Key demand of the question:

The question intends to analyse the importance of instituting a framework which enables full utilization of new ideas and innovation towards achieving self-reliance in defense sector.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief discuss the significance of intellectual property rights and their importance for Defense sector.

Body:

Discussion should have the following aspects:

Key features of Mission Raksha Gyan Shakti- it was launched with the aim to inculcate IP culture in Indian defense manufacturing ecosystem.

Explain the significance of IPR in defense domain and in what way it helps in achieving self-reliance.

Conclusion:

Conclude with way forward.

Introduction:

- The Department of Defence Production had instituted a framework titled 'Mission Raksha Gyan Shakti' which aims to provide a boost to the Intellectual Property Rights culture in indigenous defence industry.
- In a major boost to Mission Raksha Gyan Shakti, a MOU was signed between the Intellectual Property Facilitation Cell (IPFC), Department of Defence Production, Ministry of Defence and National Research Development Corporation (NRDC), Ministry of Science and Technology.

Body:

Key features of MRGS:

- As part of the ongoing initiatives to enhance self-reliance in defence, the Mission Raksha Gyan Shakti aims to provide a boost to the IPR culture in indigenous defence industry.



- It aims to achieve the goal of self-reliance in defence sector to generate Intellectual Property in India and marks a departure from the culture of seeking Transfer of Technology (ToT) from foreign sources.
- Design or IP accounts for over 50% of the cost. In some cases it is 70-80%. Indigenisation can result in cost savings of about 50-70%.
- To achieve ambitious targets of training 10,000 personnel of Ordnance Factories (OFs) and Defence Public Sector Undertakings (DPSUs) on IPR.
- To facilitate filing of at least 1,000 new IPR applications.
- The Directorate General of Quality Assurance (DGQA) has been entrusted with the responsibility of coordinating and implementing the programme.

Need for framework to achieve self-reliance:

- The IPR has emerged as a key ingredient of an ecosystem which stimulates innovation and ingenuity.
- Our knowledge and creativity have often not been utilized to its full potential due to lack of awareness on modern legal framework for protection of IP rights so it is need of the time to aware about IPR (Intellectual Property Rights).
- India has accumulated several technologies gained through Transfer of technology (ToT) agreements but for any design adjustments in the platforms, the original manufacturer has to be consulted.
- Further, it helps in safeguarding the national security secrets.
- India is the second largest arms importer in the world. It helps reduce the national spending on imports of arms and defence technology.
- It would also help earn some forex by selling the indigenously designed and developed defence equipments.
- India's aim to generate 2-3 million additional jobs in manufacturing industry and a boost to MSMEs can be achieved.

Measures needed:

- To boost indigenization, DRDO needs to be given more autonomy like space and atomic energy departments
- With opening up of 100% FDI in defence sector, giving private players an opportunity would bring in the money as well as competition to the Defence PSUs.
- Setting up of the planned defence industrial corridors.
- Robust Defence Diplomacy, for which a cadre of defence diplomats should be created so that new co-ordination with world can bring new idea and innovations.
- Setting up of a Defence Export Organization to promote export of defence equipments.
- Instituting an Independent Audit addressing issues of inefficiency and accountability, this shall help in keeping the flow of ideas and innovation.
- Setting up an aerospace university, can help in bringing new ideas and innovations

Conclusion:

- With recent trends such as globalization, emergence of new technologies, and emerging economies have elevated the importance of IPR protection, both politically and commercially, and has become a global commerce issue.
- IPRs are critical to incentivizing innovation, which, in turn, is key to sustaining economic growth and increasing living standards. IPRs in defence sector will give a natural advantage to a nation. MRGS is a step in the right direction.

Q) Chandrayaan 2 is yet another audacious attempt being made by ISRO in the field of space research. Examine the distinctiveness and significance of such a mission. (250 words)

Livemint

Why this question:

The question is to evaluate the distinctness and significance of Chandrayaan 2 mission.

Key demand of the question:

The answer must discuss in detail the objectives of the mission and what factors make it significant for India.

Directive:

Examine – When asked to ‘Examine’, we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.



Structure of the answer:

Introduction:

Start with the fact that Chandrayaan-2 is all set for 3.84 lakh km voyage.

Body:

Chandrayaan-2, which is the first Indian moon landing mission, is all set to head on its 3.84 lakh km voyage to the moon in the early hours of Monday, July 15, 2019.

The Indian Space Research Organization (ISRO) has scheduled the launch of its lunar probe, by a GSLV MkIII rocket, from the country's Sriharikota spaceport for 2.51 a.m.

A sequel to Chandrayaan-1, which was launched in 2008 and only orbited the moon at a distance of 100 km, Chandrayaan-2 entails the first attempt by any nation to make a landing on the moon's mineral rich south pole.

Explain that If ISRO achieves the feat in its first attempt, it will make India only the fourth country to soft-land on the lunar surface.

Conclusion:

Conclude by reasserting its significance.

Introduction:

- Chandrayaan-2 is India's second lunar exploration mission after Chandrayaan-1, developed by the **Indian Space Research Organisation**. It involves the three modules: the Orbiter, Lander (Vikram) and Rover (Pragyan) to conduct various scientific experiments on lunar surface.

Body:

Objectives of the mission:

- Push the **boundaries of scientific knowledge to unravel the mysteries of this universe**.
- Unleash innovation by throwing challenges at the youth of the country, and **spurring future research and development**.
- Explore economic possibilities by **strengthening ISRO's alliance** with the industry.
- Engaging with the general public by motivating the youth to undertake real life applications of science and technology.
- Expanding **India's footprint in space** as Moon is the perfect test-bed for proving technologies required for future space explorations.
- Making India a **key contributor of exploring and uncovering secrets of the universe**, thus **fostering shared aspirations** of the international community.

Distinctiveness of Chandrayaan 2:

- Technologically, it will be the most challenging mission that the Indian Space Research Organisation (ISRO) has undertaken because ISRO will not only be sending a spacecraft to the moon but attempting to soft-land a contraption called the lander on the lunar surface.
- If successful, India will be the fourth country (After Russia, China, and the USA) to land a rover on the moon.
- India will be the first country to land on the southern pole of the moon.
- This would give ISRO opportunity to name that site on the moon.
- Mission will also expand the country's footprint in space as moon is the perfect test-bed for proving technologies required for future space exploration.

Significance of the mission:

- It is India's second mission to the moon.
- It aims to explore the **Moon's south polar region**.
- It will be launched onboard India's most powerful launcher – **GSLV MK-III**.
- The mission is an important step in India's plans for planetary exploration, a program known as **Planetary Science and Exploration (PLANEX)**.
- There are three components of the mission, an orbiter, a lander and a rover.
- The mission payloads include — Terrain Mapping Camera which will generate a Digital Elevation Model (DEM) of the entire moon, Chandrayaan 2 Large Area Soft X-ray Spectrometer which will test the elemental composition of the Moon's surface Solar X-Ray Monitor which will provide solar X-ray spectrum inputs for CLASS.
- The orbiter will be deployed at an altitude of 100 kilometers above the surface of the Moon. The lander will then separate from the orbiter, and execute a soft landing on the surface of the Moon, unlike the previous mission which crash landed near the lunar south pole.



- The lander, rover and orbiter will perform mineralogical and elemental studies of the lunar surface. The rover is named **Pragyan**.
- The mission's lander is named **Vikram** after Dr Vikram A Sarabhai, the Father of the Indian Space Programme.
- 13 instruments from India, one instrument from US space agency, NASA.
- ISRO highlighted that the mission was supported by more than 500 academic institutions and 120 industries that contributed 60% of the Rs.603 crore cost of Chandrayaan-2 and 80% of the Rs.375 crore cost of the Geosynchronous Launch Vehicle-Mark III.
- The mission will also provide a map of the moon's topology, which could add many new findings to existing data due to its unique choice of the landing site.

Challenges involved in the moon landing:

- identifying trajectory accurately;
- taking up deep space communication;
- trans-lunar injection;
- orbiting around the moon;
- taking up soft landing on the moon surface;
- facing extreme temperatures and vacuum.

Conclusion:

- Based on the **new landing-profile**, the mission has further changes and new problems, with mission engineers working overtime to ensure timely launch.
- With the scientific mission riding on Chandrayaan-2, a successful landing near the south pole in itself would be an extraordinary feat for ISRO as well as global space exploration agencies.

Q) India's own manned space mission, Gaganyaan, is scheduled to be launched by 2022. In this light, discuss the achievements of previous global space missions. What are the possible spin-offs for India through Gaganyaan. (250 words)

[Indianexpress](https://www.indianexpress.com)

[Indianexpress](https://www.indianexpress.com)

Introduction:

- July 20, 2019 marked the fiftieth anniversary of man's first landing on the Moon, "a giant leap for mankind", as Neil Armstrong described it. Armstrong and Buzz Aldrin were taken to the Moon by the Apollo-11 mission in 1969. They were the first of the six two-astronaut teams that landed on the Moon over the next three years.
- The moon mission holds significance for India as she prepares for her **first manned space mission – Mission Gaganyaan**. It is being launched by Indian Space Research Organisation (ISRO) by 2022. The programme will make India the fourth nation in the world to launch a Human Spaceflight Mission. So far, only the USA, Russia and China have launched human spaceflight missions.

Body:

Achievements of previous global space missions:

| date accomplished | event | details | country or agency |
|-------------------|--|----------------------------------|-------------------|
| Oct. 4, 1957 | first artificial Earth satellite | Sputnik 1 | U.S.S.R. |
| Nov. 3, 1957 | first animal launched into space | dog Laika aboard Sputnik 2 | U.S.S.R. |
| Sept. 14, 1959 | first spacecraft to hard-land on another celestial object (the Moon) | Luna 2 | U.S.S.R. |
| April 1, 1960 | first applications satellite launched | TIROS 1 (weather observation) | U.S. |
| April 12, 1961 | first human to orbit Earth | Yury Gagarin on Vostok 1 | U.S.S.R. |
| June 16, 1963 | first woman in space | Valentina Tereshkova on Vostok 6 | U.S.S.R. |
| March 18, 1965 | first space walk | Aleksey Leonov on Voskhod 2 | U.S.S.R. |



| date accomplished | event | details | country or agency |
|-------------------|---|---|--|
| July 20, 1969 | first human to walk on the Moon | Neil Armstrong on Apollo 11 | U.S. |
| April 19, 1971 | first space station launched | Salyut 1 | U.S.S.R. |
| Dec 3, 1973 | first spacecraft to fly by Jupiter | Pioneer 10 | U.S. |
| April 25, 1990 | first large optical space telescope launched | Hubble Space Telescope | U.S., European Space Agency |
| June 21, 2004 | first privately funded manned spacecraft to achieve suborbital flight above 100 km (62 miles) | Mike Melvill on SpaceShipOne | Mojave Aerospace Ventures (commercial joint venture) |
| July 1, 2004 | first spacecraft to orbit Saturn | Cassini-Huygens | U.S., European Space Agency, Italy |
| Jan. 14, 2005 | first spacecraft to land on the moon of a planet other than Earth (Saturn's moon Titan) | Huygens probe of the Cassini-Huygens spacecraft | U.S., European Space Agency, Italy |
| June 13, 2010 | first spacecraft to return to Earth with samples from an asteroid | Hayabusa | Japan |
| March 17, 2011 | first spacecraft to orbit Mercury | Messenger | U.S. |

Spin-off benefits of ISRO's space programs:

- **Distress Alert Transmitter (DAT)**
 - INSAT based Distress Alert Transmitter (DAT) is used to transmit emergency conditions and for rescue operation. It can be easily installed in boats or other vehicles. Intended for emergency message communication transmission for all type of sea going vessels especially useful for fisherman.
- **Artificial Polyurethane Foot**
 - Polyurethane (PU) technology was developed for insulation, damping, acoustic protection and other lightweight structural applications in launch vehicles. The development of PU foams for rocket motor applications has resulted in an important spin off in the form of artificial foot prosthesis. Amputees especially among the poor and needy in the country will benefit from free prostheses replacement.
- **Fire Extinguishing Powders**
 - One of the widely used ISRO products is the fire extinguishing powder – 'OLFEX' for flammable liquid, gas fires and Ternary Eutectic Chloride (TEC) powder for metal fires. OLFEX is a reaction product of urea and potassium bicarbonate and is used for extinguishing oil fires.
- **Automatic Weather Station**
 - The state of the art Automatic Weather Station (AWS) developed by ISRO is designed as a very compact, modular, rugged, powerful, low cost system and housed in a portable, self contained package. The AWS can immediately provide information on weather and an anomaly from normal/expected weather.
- **Silica Cloth (ISROSIL)**
 - ISRO developed High Silica Cloth – ISROSIL is being used by industries for insulation and thermal protection for non metallic bellows, wrapping for pipes, cables and hoses, vertical strip furnace curtains, seals and gaskets etc.
- **DTH Based Disaster Warning system (DWS)**
 - ISRO developed a DTH based Disaster Warning Dissemination System which will find wide applications for disaster warning dissemination during flood, earthquake, tsunami, cyclone, landslides, civil disturbances etc. Function(s) of each warning receiver deployed at different places can be controlled from transmit end. The system can disseminate data Direct to Home (DTH) or to community centres and public places.



- **Pedclean**

- ISRO developed a hand cleansing formulation, PEDCLEAN-A. This cleansing system was very useful for industrial and laboratory personnel working with polymers, adhesives, oils and greases and other materials which are sticky in nature. PEDCLEAN was evaluated and certified by Industrial Toxicological Research Institute, Lucknow who certified it safe for human use as a skin barrier cream.

Conclusion:

- Space research always has been fascinating and India has not lagged behind. Future challenges related to space exploration, space travel, tourism application programmes based on space assets spin off technology benefits etc are going to provide lot of opportunity to the new generation.

Q) Do you agree that the country must deregulate the space sector to encourage private enterprise so as to compete in the new space economy ? Analyse. (250 words)

[Livemint](#)

Why this question:

The article throws light upon space as an emerging economy and the rising strides of competition.

Key demand of the question:

The answer must focus on importance of deregulating the space sector and allowing the private sector to play key role in contributing to the space economy.

Directive:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Discuss the background of the question.

Body:

Explain how private sector carries with it huge potential to propel the space economy, How has the role of the private sector evolved over the years? Quote the example of SpaceX and with these changing trends how have the regulatory framework shaping up etc.

Take cues from the article and form a structured answer.

Conclusion:

Conclude by reasserting importance of the space economy and role of deregulation of the sector.

Introduction:

- India has been achieving great feats in the space arena ranging from Mangalyaan to launching 104 satellites at one go to the recent Chandrayaan 2 mission.
- However, it is ironic that India—whose space-faring tradition is decidedly in the service of human development—is lagging in harnessing the power of private innovation in the space domain. This not only limits the exploitation of space for economic development, but has serious national security implications.

Body:

India's space program

Potential advantages of rising Space industry:

- Adding an edge to India's foreign policy as our space capabilities can be a part of our initiatives to foster new relationships,
- Avoiding the outflow of tax-payer's money to foreign hands from where we procure turnkey products and services,
- Creating more opportunities for foreign direct investments (FDI), as well as new jobs for highly-skilled labour market,
- Empowering India's defence system by equipping it with space technology, and allowing armed forces to procure defence products and services indigenously, and
- Reversing the brain-drain from India.

Challenges for private space entities in India:

- **Monopoly:** In India 'Space' means Indian Space Research Organisation. Globally the technology is highly protected because of its dual use capability. Even if it was not, it would be prohibitively expensive.
- **Funding:** A major challenge in setting up a space business in India is funding. Space industry is capital intensive and upstream activities come with a long gestation period.



- **Investor's Dilemma:** The lack of clarity among the investors and lack of the ecosystem required for significant contribution is a challenge for the investors.
- **Lack of Regulation:** India is a party to the **Outer Space Treaty**, where one of the fundamental requirements laid upon states is the supervision of space activities within its borders, the country did not have any formally legislated laws. This is a potential roadblock for commercialization.
- **Growth Challenges:** Scaling up, international marketing and funding are challenges.
- **Lack of Support:** the Indian ecosystem has neither incubation support nor pointers to seek support of leaders such as ISRO for space start-ups.
- **Political and bureaucratic hurdles** limit private space operations in India.
- Low in-house capacity of ISRO restricts them to very few launches in a year. Privatization can offload 30-40% of the work and help them work more efficiently.

Way forward:

- India should have **national space activities legislation** which takes on board all stakeholders.
- A **public-private partnership (PPP) model** can be looked into to realise ISRO's workhorse Polar Satellite Launch Vehicle (PSLV), with a joint venture between ISRO and the private sector.
- In the UK, space ventures are treated as a complement to big organizations and not a competitor. This should be encouraged in India too.
- A **supportive international partner and likeminded local partners** helps to set up a space business.
- The idea should be to let the private industry build their own facilities after gaining enough expertise.
- ISRO has built a space technology park spread over 25 acres in Bengaluru where the entire range of facilities have been set up for use by the industry.

Conclusion:

- The private sector already supplies majority of the sub-systems in satellite manufacturing. This can be further scaled up into other activities with proper regulation and partnership of the ISRO and private sector.
- The country must deregulate the space sector to encourage private enterprise if we are to compete in the new space economy

Q) Enumerate the different missions launched for exploration of Moon by various space organisations. What are the challenges associated with long plight missions ? How ISRO's Chandrayaan-2 is different from other similar missions launched by different countries ? (250 words)

The hindu

Introduction:

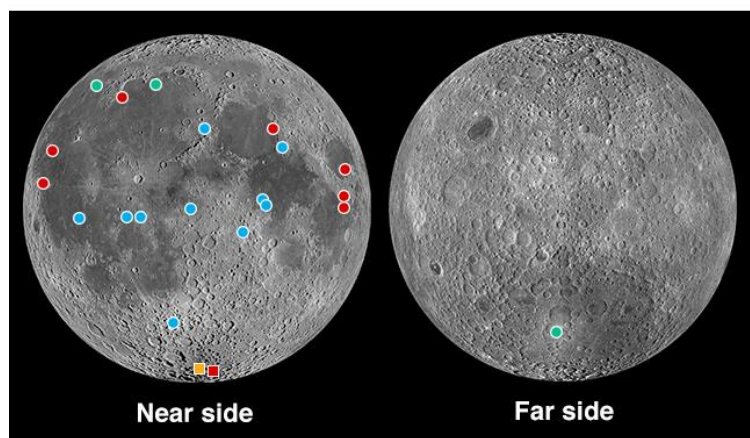
- India successfully launched its second lunar mission Chandrayaan-2 a week after it halted the scheduled blast-off due to a technical snag.
- India hopes the \$145m (£116m) mission will be the first to land on the Moon's south pole. If successful, India will become the fourth country to make a soft landing on the Moon's surface. Only the former Soviet Union, the US and China have been able to do so.

Body:

Various global missions for exploration of moon:

- **Luna Programme:** It was a series of unmanned space mission of the Soviet Union sent to the Moon between 1959 and 1976. It was designed as either an orbiter or lander and accomplished many firsts in space exploration.
- **Project Apollo:** It was a series of human spaceflight missions undertaken by the United States of America using the Apollo spacecraft and Saturn launched vehicle conducted between 1961-1972. It was the third US human spaceflight program to fly, preceded by the two-man Project Gemini conceived in 1961 to extend spaceflight

Sites of successful Moon landings



Source: NASA

BBC



capability in support of Apollo. The crew of first space expedition of this mission was Neil Armstrong, Michael Collins and Buzz Aldrin. Armstrong and Aldrin walked on the lunar surface while Collins remained in orbit around the moon. Neil Armstrong was the first person to walk on the moon.

- **Chandrayaan 1:** It was India's first lunar probe launched by the Indian Space Research Organisation in October 2008, and operated until August 2009. The prime objective was to conduct scientific experiments using instruments on the spacecraft which would yield data.
- Landing on moon's far side: In January 2019, China's **Chang'e 4** became the first spacecraft to land on the far side of the moon
- Google also entered the fray with a competition – **Lunar XPRIZE** – to facilitate affordable access to the moon and help space entrepreneurs to develop long-term business models on lunar transportation.

Challenges associated with long flight missions:

- identifying trajectory accurately;
- taking up deep space communication;
- trans-lunar injection;
- orbiting around the moon;
- taking up soft landing on the moon surface;
- Facing extreme temperatures and vacuum.

Distinctiveness of Chandrayaan 2:

- Technologically, it will be the most challenging mission that the Indian Space Research Organisation (ISRO) has undertaken because ISRO will not only be sending a spacecraft to the moon but attempting to soft-land a contraption called the lander on the lunar surface.
- If successful, India will be the fourth country (After Russia, China, and the USA) to land a rover on the moon.
- India will be the first country to land on the southern pole of the moon.
- This would give ISRO opportunity to name that site on the moon.
- Mission will also expand the country's footprint in space as moon is the perfect test-bed for proving technologies required for future space exploration.

Conclusion:

- Based on the **new landing-profile**, the Chandrayaan-2 mission has further changes and new problems, with mission engineers working overtime to ensure timely launch.
- With the scientific mission riding on Chandrayaan-2, a successful landing near the south pole in itself would be an extraordinary feat for ISRO as well as global space exploration agencies.

Topic: Conservation, environmental pollution and degradation, environmental impact assessment,

Q) "Assertion of environmental citizenship by the people of India is the need of the hour". Analyse the statement with suitable examples. (250 words)

[Indianexpress](https://www.indianexpress.com)

Why this question:

The article discusses in detail the Hindu Vedic principle of Rta dharma – Sanskrit for "truth" or "order". It highlights the religious thoughts of other indigenous communities in India and provides guidelines to counter the irresponsible decisions made in the name of development by governments and private stakeholders benefiting from environmental clearances.

Key demand of the question:

One has to analyse in depth the need of some kind of environmental citizenship by the people to conserve and save our environment for longer and sustainable future.

Directive:

Analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Begin with importance of environmental citizenship – what is it and why is it necessary.

Body:

Explain the following aspects in the answer:

Explain why assertion of environmental citizenship by the people of India is the need of the hour?



What are the means and ways people can assert their environmental citizenship? – here one can quote example, as suggested in the article one can talk about the religious beliefs of various communities, tribal communities etc.

Discuss how role of citizens is as important as role played by government, other organizations and NGOs etc.

Conclusion:

Conclude with way forward.

Introduction:

- Environmental Citizenship is an idea that each of us is an integral part of a larger ecosystem and that our future depends on each one of us embracing the challenge and acting responsibly and positively toward our environment. It's about making changes in our daily lives to be environmental citizens all day, every day.
- Religious notions of indigenous communities in India provide an understanding of the natural order, and resources to resist its degradation.

Body:

Need for environmental citizenship to be practiced:

- Cutting of trees, escalating construction without consideration to secure water catchment areas or aquifers.
- The approaching national water emergency is not because of lack of rains or water bodies, but mismanagement of resources on the ground.
- The disturbance in water, earth, vegetation, river and mountain ecology system has threatened all manner of life.
- Increasing number of irresponsible decisions made in the name of development by governments and private stakeholders benefiting from environmental clearances.
- The traditional wisdom in the semantics of development is marginalised — building roads, setting up industries, creating infrastructure spell short-term gains for the few and apocalypse for humanity as a whole.
- Social groups, traditionally, create livelihoods by harnessing available natural resources. Not factoring cultural wisdom to conserve natural environment impacts geographies and, in turn, reconfigures cultural responses.

Methods of practicing Environmental Citizenship:

- **A Green Lifestyle:**
 - Different parts of our website show how important it is to adopt a lifestyle that helps the environment.
 - Another way that you can engage in good environmental citizenship is to keep waste down to a minimum in your home.
 - The key to this is to reduce, reuse and recycle.
- **Culture as a tool:**
 - The Hindu concept of Rta dharma, explained by Kapila Vatsyayan in her essay 'Ecology and Indian Myth', states that the moral duty of communities is through karma towards sustaining and maintaining Rta (cosmic natural order).
 - The same thought is reiterated in the Guru Granth Sahib: The book enunciates a concern for the environment as an integrated approach to life and nature by stating that air, water, earth, and life — all originated from the True Lord who resides in each one of us and requires protection.
 - Islamic scholar Sigrid Nökel offers similar ideas through terms such as fitra creation as natural order; tawhid — that all things in the world are related to one another and are, as aspects of God, valuable and worthy of preservation; and, that khilafa refers to the role of mankind as the trustee of creation.
- **Participate in Environmental Decision Making:**
 - One good way of exercising environmental citizenship is to get involved in the environmental decision making process.
 - The community ownership expressed in the protests in Chhattisgarh requires duplication in many more areas.
 - To protect their forests and sacred hills, the indigenous forest communities organised protests initiated by the Sanyukt Jansangraha Samiti against the mining of Deposit 13 of the Bailadila iron ore mine in Chhattisgarh's Dantewada district
- **Hold Businesses to Account:**
 - Industries and businesses have a tremendous impact on the environment. Help them to act responsibly as you make your consumer choices on goods or services.



- The uprising a few years ago of the Dongria Kondhs of Odisha who eventually won a David-and-Goliath battle against mining giant Vedanta Resources.
- **Access to Environmental Information:**
 - It will be difficult to participate in environmental decision making, without having adequate access to environmental information.
 - Environmental information includes, information held by public bodies on air, water, soil, land, plants and animals, energy, noise, identity of polluters from the pollution registers, waste and emissions.
 - Using the RTI act, Forest Rights Act to protect the rights of the Scheduled tribes and Forest dwellers.
- **Access to Justice in Environmental Matters:**
 - It involves the right of all to access legal help and to get adequate judicial redress on environmental issues.
 - The cost of taking a case to court has been identified as a major barrier to access to environmental justice.

Conclusion:

- A systematic citizens' network of environment panchayats to promote environmental sustainability is required.
- What is needed is the will to support, and to ensure, environmental protection for and by the people of India.

Q) Forest dwellers and farmers are the best hope to preserve biodiversity and ensure food security. Discuss the statement with suitable examples. (250 words)

The hindu

Why this question:

The article deals in what way forest dwellers and farmers are the best hope to preserve biodiversity and ensure food security.

Key demand of the question:

The answer is straight forward and must discuss the role of forest dwellers, tribal communities and the farmers in preserving biodiversity and ensuring food security.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Explain the context of the question.

Body:

Discussion should be followed by suitable examples to justify the role of forest dwellers, for e.g. the case study of Dongria Kondh tribe of Niyamgiri Hills – they are among the best conservationists in the world. Known for the spirited defense of their forested habitat against short-sighted industrialization, they have through millennia evolved a lifestyle that is in perfect harmony with nature.

Likewise explain the role played by farmers – in what way they help achieve food security.

Take cues from the article and discuss their significant role.

Conclusion:

Conclude by reasserting their significant role played in conserving and preserving the biodiversity and ensuring food security.

Introduction:

- The UN-backed panel's **first global assessment of biodiversity** held humans squarely responsible for the looming mass extinction of species.
- A loss in biodiversity simply means that plants and animals are more vulnerable to pests and diseases, and it puts food security and nutrition at risk. In this context, forest dwellers and farmers are the best hope to preserve biodiversity and ensure food security.

Body:

Challenges posed due to dwindling biodiversity:

- The situation with India's forests now is less encouraging.
- Nature now faces the threat of another mass extinction of species.
- Pressure from industrialisation does not care too much about conservation and biodiversity.



- The same holds true for the overexploitation of our rivers and seas.
- Without radical efforts towards conservation, the rate of species extinction will only gather momentum.
- There is no single national-level answer to the problem of crop and biodiversity loss.
- For instance, the natural farming movement in Andhra Pradesh may not be suitable for, say, Punjab.

Importance of indigenous people in biodiversity conservation:

- Across India, there are many indigenous people who have managed to lead safe lives without any needless destruction of natural ecosystems.
- These tribes, along with marginalised communities living on the fringes of forests and millions of smallholder farmers, have a crucial role now.
- They offer the much-needed solutions to the bio-diversity challenges of the present era

Case study:

- The Dongria Kondh tribe of Niyamgiri Hills are among the best conservationists in the world.
- Known for the spirited defence of their forested habitat against short-sighted industrialization, they have through millennia evolved a lifestyle that is in perfect harmony with nature.
- Nothing can be achieved without the active participation of communities that live close to nature — farmers and forest dwellers.

Way forward:

- Although biodiversity loss is a global problem, it can be countered only with local solutions, as there is no one-size-fits-all approach in this.
- India's tropical homeland is rich in biodiversity.
- But, the imperatives of relentless economic growth, urbanisation, deforestation and overpopulation place it at a higher risk.
- Certainly, a solution that has succeeded in a temperate, wealthy nation may not be suitable for a country like India.
- It is now obvious that intensive agriculture, exploitative forestry and overfishing are the main threats to biodiversity in India and the world.
- Given these, the approach now should be to ensure the active participation of communities that live close to nature – farmers and forest dwellers.
- Innovative policies should take lead like the –
 - growing movement of zero-budget natural farming in Andhra Pradesh and Telangana
 - the community-driven forest conservation initiatives in Odisha and the Northeast
- The UN agencies too have emphasized on the significance of the accumulated wisdom of indigenous peoples, fishers and farmers.

Conclusion:

- Local people should be at the centre of all the actions taken at dealing with the challenges of nature. Instead of evicting forest dwellers from their homes, the country should be encouraging them to conserve and nurture their habitats.
- Their knowledge about the local geography, climate, and relief will help in better conservation of the biodiversity.

Q) Untreated waste water poses a threat to both human health and the aquatic ecosystems. Explain the statement with examples. (250 words)

Reference

Why this question:

The article discusses the threats posed by untreated waste water on human health and aquatic health.

Key demand of the question:

Explain in detail the ill effects posed by the untreated waste water, what needs to be done to address the same.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Briefly introduce problem of untreated water.

**Body:**

Explain with few facts – The 2017 United Nations World Water Development Report (WWDR) notes that more than 80% of the world's wastewater is released into the environment untreated.

Write about impact of untreated wastewater – on health, economy, environment etc.

Discuss what should be the way forward.

Conclusion:

Conclude by suggesting solutions.

Introduction:

- Wastewater is any water that has been adversely affected in quality by anthropogenic influence. Wastewater can originate from a combination of domestic, industrial, commercial or agricultural activities, surface runoff or storm water, and from sewer inflow or infiltration.
- The **2017 United Nations' Water Development Programme's World Water Development Report (WWDR)** notes that more than 80% of the world's wastewater — over 95% in some least developed countries — is released into the environment untreated.
- The **National Green Tribunal** has directed 18 States and 2 Union Territories to submit their respective action plans on utilisation of treated wastewater to reduce pressure on the groundwater resources across the country.

Body:

Threats posed by untreated wastewater:-

- **Water borne diseases:** such as polio, cholera, typhoid etc; slum dwellers are at a greater risk due to poor drainage in slums.
- **Threat to water bodies & aquatic life:** wastewater is rich in nutrients which eutrophics water bodies causing algal bloom, increase in BOD, killing the aquatic life beneath.
- **Biomedical waste:** many city hospitals dump biomedical waste into drains thereby multiplying the toxicity of wastewater.
- **Pollution of Rivers:** Indian rivers like Ganga, Yamuna are being severely polluted by effluents discharges by industries hence wastewater by domestic and other sources adds to the problem.
- **Reduced flow and corrosion** in sludge pipes due to build-up of organic content hence it severely damages the infrastructural set up.
- **Toxic gases** like Hydrogen Sulphide, CO₂, ammonia, methane produced from slurry can become hazardous to people and animal around.

Way forward:

- **Tapping and Recycling waste water resources**
- **Need of national Water policy,** on lines of Rajasthan – 1st state to implement sewage water policy
- **Extraction of by-products:** such as salt, nitrogen, phosphorous will be useful for local businesses.
- **Industrial applications:** for cooling purposes in power stations, industrial machinery etc; Singapore uses reclaimed water called '**NEWater**' to serve 30% of its needs.
- **Role of government, municipalities:** need to enforce stricter norms regarding dumping of wastewater, improve process for treatment of wastewater.
- **Improve infrastructure:** setting up more wastewater treatment plants in every municipality funding them through municipality bonds.
- **Cultural change:** the culture of wasting water needs to be changed through educational campaigns.
- **New technology:** like sequencing batch reactor – C-TECH technology that was adopted in Navi Mumbai, meets the standards of EUROPEAN UNION in terms of treated water quality.
- A paradigm shift from "**use and throw – linear**" to a "**use, treat, and reuse – circular**" approach is needed to manage wastewater.
- Investment in wastewater treatment has associated risks as well. It is therefore important to understand the underlying social, political, technical, and financial factors that will drive, facilitate, and sustain wastewater management interventions in India.

Conclusion:

- Sustainable Development Goal (SDG) 6 specifically focuses on water and sanitation, with Target 3 addressing water quality, but the availability of water is a cross-cutting issue upon which every aspect of development hinges.
- Put simply, water is life, and without a sustained commitment to improving and benefiting from effective wastewater management, that precious resource, and the billions of lives it nourishes, is in peril.



Q) Discuss the key features of Climate Change Performance Index (CCPI) also bring out the key findings' of 2019 edition. (250 words)

Reference

Why this question:

The question is based on the theme of CCPI and the key findings of 2019 edition.

Key demand of the question:

The answer must discuss in detail the relevance of the report, features and its major highlights.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

The Climate Change Performance Index (CCPI) is an instrument covering 58 countries and supposed to enhance transparency in international climate politics.

Body:

The 2019 edition of the Climate Change Performance Index (CCPI) has been released which illustrates regional differences in climate protection and performance within the 56 evaluated countries and the EU.

No country performed well enough to reach the ranking 'very good' in this year's index.

Explain that its aim is to encourage political and social pressure on those countries which have, up to now, failed to take ambitious actions on climate protection as well as to highlight countries with best-practice climate policies.

Discuss the highlights and bring out the performance reported for India.

Conclusion:

Conclude with significance of the findings.

Introduction:

- The Climate Change Performance Index (CCPI) is an instrument covering 58 countries and supposed to enhance transparency in international climate politics. It is an annual publication by **Germanwatch, NewClimate Institute and Climate Action Network Europe**.
- Its aim is to **encourage political and social pressure on those countries which have, up to now, failed to take ambitious actions on climate protection as well as to highlight countries with best-practice climate policies**.

Body:

Key features:

- The top three positions of the CCPI 2019 are still unoccupied, because none of the 56 countries or the EU are clearly on a well below 2°C pathway in their overall performance.
- The four categories examined are: GHG emissions (40%), renewable energy (20%), energy use (20%) and climate policy (20%).
- The latter is based on expert assessments by NGOs and think tanks from the respective countries.
- The CCPI also evaluates to what extent the respective countries are taking adequate action within the categories emissions, renewables and energy use to being on track towards the global Paris-goal of limiting global warming to well below 2°C.
- Therefore, the CCPI is an important tool in contributing to a clearer understanding of national and international climate policy.

Key findings of CCPI 2019:

Global Performance:

- Morocco has been named the second best performing country after Sweden in the Climate Change Performance Index (CCPI).
- With the connection of the world's largest solar plant to the grid, Morocco is on track for achieving its target of 42% installed renewable energy capacities by 2020.
- Sweden is in top position, followed by Morocco and Lithuania in the CCPI 2019.
- The bottoms five in the list are Saudi Arabia, U.S., Iran, South Korea and Taiwan.

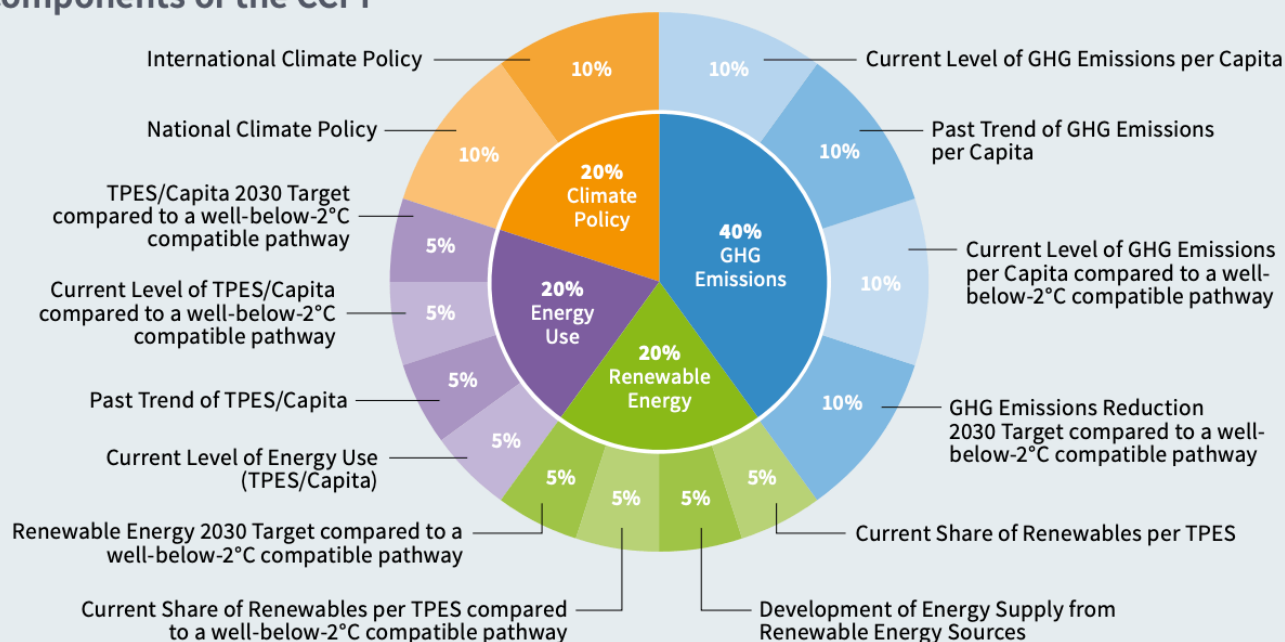
India's Performance:

- India ranks 11th in this year's CCPI, improving its standing by three places compared to the previous edition.
- Most notably India improved its performance in the Renewable Energy category, joining the group of medium



- However, national experts argue that plans to build new coal-fired power plants may pose a risk of offsetting positive developments in the renewable energy sector.
- Comparatively low levels of per capita GHG emissions and a relatively ambitious mitigation target for 2030 give India an overall high rating in the emissions category.

Components of the CCPI



GHG = Greenhouse Gases | TPES = Total Primary Energy Supply

© Germanwatch 2018

Conclusion:

- While there is a continued growth and competitiveness of renewable energy, especially in countries that had low shares before, the CCPI shows a lack of political will of most governments to phase out fossil fuels with the necessary speed.
- Because of that, in most countries the climate policy evaluation by national experts is significantly lower than in the last years.

Q) Analyse the reasons behind India's problem of e-waste and provide an account for the ineffectiveness of the rules. (250 words)

Reference

Why this question:

The article provides a closer look at the menace of e-waste that India is facing.

Key demand of the question:

The answer must look into the reasons leading to the problems of e-waste with special emphasis on the ineffectiveness of rules and regulations dealing with it.

Directive:

analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Discuss in brief what you understand by e-wastes, how are they generated etc.

Body:

Introduce briefly e-waste problem through relevant facts.

Enumerate causes of e-waste.

Describe the reasons for the failures of e-waste guidelines to control the problem.

Explain that when E-waste are dismantled and disposed unscientifically, they release extremely harmful gases or large particulates into environment causing hazardous air pollution causing severe health hazards.

Thus, there is need to implement the E-waste management rules 2016 effectively and deal with the problem of e-waste more holistically with proper monitoring mechanisms in place.



Conclusion:

Conclude by suggesting way ahead, suggest solutions at policy level, technology level etc.

Introduction:

- A recent **UN report** titled '**A new circular vision for electronics**' warned that '**Tsunami of e-waste**' was to hit the world soon. The report notes that the waste stream has already reached **48.5 million tonnes (MT) in 2018** and the figure is expected to double if nothing changes.
- In India, e-Waste accounts for **70% of the landfills. (2011 Rajya Sabha Secretariat Study)**. By 2050, India will likely stare at a pile of a new category of electronic waste, namely **solar e-waste**. India's **PV (photovoltaic) waste volume is estimated to grow to 200,000 tonnes by 2030 and around 1.8 million tonnes by 2050**.

Body:

The **root causes** of India's e-Waste problem are:

- e- Waste is technically all waste electrical and electronic equipment (WEEE) discarded without the intent of use.
- It comprises not just electronic items, but also all electrical equipment that involves anything with a plug, electric cord or battery.
- In recent years, e-waste has grown faster than earlier anticipated. By 2021, the annual total volume is expected **to surpass 52 MT**, considering the fact that the number of devices connected to the internet is going to be between **25-50 billion by 2020**. **By 2050, the volume of e-waste in the worst-case scenario, could top 120 MT annually**.
- In India, e waste accounts for **4% of global e-waste and 2.5% of global GDP** (2014 figures) – so it has a higher share of e-waste than its share of gross domestic product (GDP).
- The **informal sector** manages about **95% of the e-Waste in India**. Due to the informal and crude processing techniques, the soil, water and air are polluted to a beyond-repairable level. **Example:** Moradabad and Seelampur.
- The **hard-to-recover substances from e-waste like mercury, arsenic** make their home in landfills and keep leaching into ground water.
- **Incineration** is one of the most practiced methods of recycling leading to high carbon emissions and poisoning of air with toxic gases.
- **The poor implementation of Extended Producer Responsibility** as mandated under **e-Waste Management Rules, 2016** is another challenge.
- The **export of e-Waste from developed countries** is another growing problem despite regulations under **Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal**.

Causes for failure of rules and regulations for e-Waste:

- India has 19 PROs (producer responsibility organisations), which are hired for collection as of today but there is no level playing field.
- There is no independent mechanism to verify if EPR is being implemented. The law mandates random inspections by the Central Pollution Control Board (CPCB) and state PCBs, but there's no record of them.
- The issues of how to address the ones using the products: how do you get people to hand back their products in a reasonable way.
- The lack of companies' initiative to build an image of a responsible actor, of someone consumers can believe in.
- Customer care representatives do not have inkling about any take back or recycling programme and even if they have set up collection centres, they are simply not enough for a geographically vast country like India.
- India being a vast country, setting up collection mechanism is a big challenge. If any of the brands try individually to reach out to all corners of the country, it will economically not be sustainable or feasible.

Measures to control the e-Waste growth:

- **Unified effort:** The report calls for systematic collaboration with major brands, small and medium-sized enterprises, academia, trade unions, civil society and associations in a deliberative process to reorient the system and reduce the waste of resources each year with a value greater than the GDP of most countries.
- **Holistic management:** To **capture the global value of materials in e-waste and create global circular value chains, use new technology to create service business models, better product tracking and manufacturer or retailer take-back programmes**.
- **Scaling up recycling:** The report notes that **material efficiency, recycling infrastructure and scaling up the volume and quality of recycled materials** to meet the needs of electronics supply chains will all be essential for future production.



- **Incentivization:** The producers should also have buy-back or return offers for old equipment, and plans to incentivise the consumer financially. The report also advocates a system of 'urban mining' by strengthening the **extended producer responsibility provision**.
- **Job potential:** If the electronics sector is supported with the right policy mix and managed in the right way, it could lead to the **creation of millions of decent jobs worldwide**.
- **Awareness & Education:** there is an acute lack of awareness among people as they simply don't know that there exist collection centres that collect items for recycling. The law will fail to serve the purpose unless these changes are made on the ground.

Conclusion:

- A strong political will is required to come out with strict regulations to manage e waste in India. Increased public awareness is the need of hour.
- It is now to be seen how the stakeholders who turned a blind eye to the rules so far, proceed ahead.

Q) Enumerate the significant elements of India's Intended Nationally Determined Contribution (INDC) ? Explore the methods of financing for meeting the objectives of India's INDC. (250 words)

Reference

Introduction:

- **Intended Nationally Determined Contributions or INDCs**, are publically declared country commitments indicating the actions each country would take under a new global agreement, which would eventually take its final shape in December 2015 at the 21st session of the signatories /parties to the United Nations Framework Convention on Climate Change (UNFCCC).
- The INDCs will largely determine whether the world achieves an ambitious 2015 agreement and is put on a path toward a low-carbon, climate-resilient future. Government of India submitted its INDCs on 1st October 2015 to the UNFCCC.

Body:

Salient features of India's INDC:

- To put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation.
- To adopt a climate-friendly and a cleaner path than the one followed hitherto by others at corresponding level of economic development.
- To reduce the emissions intensity of its GDP by 33 to 35 per cent by 2030 from 2005 level.
- To achieve about 40 per cent cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030, with the help of transfer of technology and low cost international finance, including from Green Climate Fund.

Key elements and focus areas of India's INDC:

India's INDC centre around the country's policies and programmes for:

- **Sustainable Lifestyles:** To put forward and further propagate a healthy and sustainable way of living based on traditions and values of conservation and moderation.
- **Cleaner Economic Development:** To adopt a climate friendly and a cleaner path than the one followed hitherto by others at corresponding level of economic development.
- **Reducing Emission intensity of Gross Domestic Product:** To reduce the emissions intensity of its GDP by 33 to 35 percent by 2030 from 2005 level.
- **Increasing the Share of Non Fossil Fuel Based Electricity:** To achieve about 40 percent cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030 with the help of transfer of technology and low cost international finance including from Green Climate Fund (GCF).
- **Enhancing Carbon Sink:** To create an additional carbon sink of 2.5 to 3 billion tonnes of CO₂ equivalent through additional forest and tree cover by 2030.
- **Adaptation:** To better adapt to climate change by enhancing investments in development programmes in sectors vulnerable to climate change, particularly agriculture, water resources, Himalayan region, coastal regions, health and disaster management.
- **Mobilizing Finance:** To mobilize domestic and new & additional funds from developed countries to implement the above mitigation and adaptation actions in view of the resource required and the resource gap.



- **Technology Transfer and Capacity Building:** To build capacities, create domestic framework and international architecture for quick diffusion of cutting edge climate technology in India and for joint collaborative R&D for such future technologies.

Methods of financing for meeting the objectives of India's INDC:

- As per estimates, at least USD 2.5 trillion (at current prices) required between now and 2030 to implement all planned actions.
- USD 206 million required for adaptation actions. Much more needed for strengthening resilience and disaster management.
- About USD 834 billion, at 2011 prices, required for mitigation actions till 2030.
- A total of INR 170.84 billion collected through cess on coal production. Being used for funding clean energy projects
- **National Clean Energy Fund:** The Fund was created to promote clean energy, funded through an initial carbon tax on use of coal by industries.
- **National Adaptation Fund** has been created with initial allocation of Rs 3500 million.
- **Clean Development Mechanism (CDM):** It allows emission-reduction projects in developing countries to earn certified emission reduction (CER) credits, each equivalent to one tonne of CO₂. The CDM is the main source of income for the UNFCCC Adaptation Fund.
- In February 2015, at the **REInvest renewable energy financing event** hosted by the Indian government, the MNRE invited public and private corporate and financial firms to invest in the country's renewable energy sector in the five-year period from 2015-2019.
- **Tax free infrastructure bonds** of INR 50 billion being introduced for funding renewable energy projects
- The **CAMPA act** passed helps use the money collected under compensatory afforestation funds.
- **Polluter Pays:** The 'polluters pays' principle is the commonly accepted practice according to which those who produce pollution should bear the costs of managing it to prevent damage to human health or the environment. This principle underpins most of the regulation of pollution affecting land, water and air formally known as the 1992 Rio Declaration.

Other feasible measures:

- **Green Bonds:** Bonds issued to raise money especially for Green projects.
- Creation of Renewable Energy Investment Trusts as in UK.
- Incorporating renewable energy within **Priority Sector Lending requirements**
- **Public-private partnership (PPP) and PPP People (PPPP)** can help improving climate finance.

Conclusion:

- An analytical framework is necessary to combine potential climate risks with a systematic cost-benefit analysis. Favourable policy and institutional actions are important for successful introduction or scaling up of financial instruments.
- Climate finance should be equipped with non institutional financial services such as market funds, private etc.

Q) Discuss the risks and benefits of Eco-Tourism with examples in India ? (250 words)

[Reference](#)

[Reference](#)

Introduction:

- Ecotourism as a term first emerged during the late 1980s with **growing global concern for sustainable practices with regard to ecologies extending towards minimizing the degenerative results of tourism on the environment.**
- Ecotourism thus essentially has come to imply **responsible travel practices when exploring natural conditions such that travel practices are conducted with a view towards environmental conservation, environmental sustainability and the welfare of local communities.**
- This involves generating practices that aim towards better interpretation of tourism practices and education regarding the above.

Body:

- Ecotourism was introduced in India after the World Tourism Organization announced 2002 as the International Year of Ecotourism coming under the United National Environmental Program.
- **Thenmala in Kerala** is India's first planned and certified ecotourism destination. Other than this there are many national parks and sanctuaries in India that act to cater to tourism and work towards environmental conservation at the same time (Eco India, 2008). Many ecotourism sites are now present in India.

**Benefits:**

- **To increase foreign exchange:** Ecotourism is one of the important industries that earn foreign exchange for a country without actually exporting any material. The income from ecotourism has tended to increase at a higher rate than merchandise export in a number of countries.
- **To help in the development of infrastructure facilities:** Development and improvement of infrastructure facilities are another important benefit offered by the ecotourism industry. A variety of secondary industries may be promoted which may not serve the needs of. Thus, indirectly; tourist expenditure may be responsible for stimulating other economic activities of a country.
- **To help in balanced regional development:** Tourism development greatly benefits underdeveloped regions of a. These economically backward regions mostly have places of high scenic beauty which if developed for the tourism industry, will help to bring a lot of prosperity to the local people.
- **To help in generating employment:** Tourism industry is highly labour intensive service industry that generates employment for highly skilled, semiskilled and unskilled labour in sectors like hotels, restaurants, travel agencies, tourism offices, shops etc.
- **To help in maintaining peace and understanding:** Tourism plays an important role in promoting international. It creates awareness and appreciation of other countries culture and nature.

Risks:

- Ecotourism that is not properly implemented in a learned manner can thus fall prey to commercialization, and more often than not commercial interests can overrun the pedagogy of policy on the ground level.
- It is the major threat to the rich biodiversity and natural habitats of the wilds in the jungles.
- Eco tourism tends to conserve the environment at the expense of the development prospects for the third world communities.
- Located in the eco systems, eco tourism projects it is the biggest obstacle in the way of the development of the environment.
- Competition for eco tourism income between the various groups leads to social disharmony.
- To cater to the increasing demand for eco-tourism, land around parks and sanctuaries is being cleared through deforestation, displacement of people etc. to accommodate hotels, resorts etc.
- Increased use of resources by the human population, even in the smallest sense cause problem to the environment.
- Another major threat to the environment is the production waste and effluent pollution as well as increasing human activities like logging, and agricultural clearance.
- Eco-tourism takes away livelihoods from the locals, and in return provides them with low-paying subordinate positions in the resorts etc that are established. No viable long-lasting employment opportunities with scope for growth are provided to the locals.

Conclusion:

- India is one of the 12-mega bio-diverse countries of the world and has a rich cultural heritage too. It has a vast potential for ecotourism that needs to be tapped for healthy conservation and preservation of nature and bringing about economic benefits to the local communities.

Q) Discuss the Objectives of Environmental Impact Assessment in India also trace the recent developments in this direction while commenting on the current framework of the same. (250 words)

Reference**Why this question:**

The question is straightforward and is about analyzing the EIA process and its objectives.

Key demand of the question:

The answer must discuss in detail the objectives of EIA and trace the recent developments in this direction.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.



Structure of the answer:

Introduction:

Describe what is EIA.

Body:

Explain the Objectives of Environmental Impact Assessment

- Identifying, predicting and evaluating economic, environmental and social impacts of development activities.
- Providing information on the environmental consequences for decision making.
- Promoting environmentally sound and suitable development by identifying appropriate alternatives and mitigation measures.

Discuss the importance and relevance.

Explain the framework existing in India, progress made on different fronts etc.

Conclusion:

Conclude with way forward.

Introduction:

- Environmental Impact Assessment (EIA) is an important management tool for ensuring optimal use of natural resources for sustainable development. It covers developmental sectors such as industries, thermal power projects, mining schemes etc.
- EIA has now been made mandatory under the Environmental (Protection) Act, 1986 for 29 categories of developmental activities involving investments of Rs. 50 crores and above.

Body:

The objective of the EIA:

- To identify, predict and evaluate the economic, environmental and social impact of development activities.
- To provide information on the environmental consequences for decision making.
- To promote environmentally sound and sustainable development through the identification of appropriate alternatives and mitigation measures.
- To identify and quantify emission sources and determine the significance of impacts on sensitive receivers and potential affected uses.
- To identify and quantify any potential losses or damage to flora, fauna and natural habitats.

Issues Related to EIA:

- Environmental decision-making processes for development projects are supposed to use the best available scientific knowledge to ensure that development does not lead to negative impacts.
- But there are compromised decision-making on development and infrastructure projects.
- Sometimes the EIA reports lack the expected degrees of honesty, owing to bias, corruption, exaggeration and wrong claims.
- EIA reports for the approved “redevelopment” projects in Delhi were prepared by copying from copyrighted papers, web-pages and other EIA reports.
- There are many instances of missing or misleading information which understate the potential impact of the projects.
- Many projects are approved without public consultation.
- Lack of awareness among the local people about the process of EIA, its significance for them, their own rights and responsibilities.
- Most of the time EIA reports are unavailable in local languages, thus local people are unable to decipher the reports, and are misled by the proponents

Way Forward:

- Competent authorities must ensure that a project causes minimal adverse environmental impact and generates maximum social and economic benefits.
- Involving affected people and concerned citizens in environmental decision-making has far reaching effects.
- It allows for democratising environmental governance.
- Participatory processes give opportunities to understand and plan for unforeseen effects.
- In 2009, the **Delhi High Court in Utkarsh Mandal v/s Union of India** upheld that it is the duty of the EACs to consider the merits of the objections raised at the public hearings.
- Women and other vulnerable sections of the society are the first and most affected by consequences of developmental processes and damage to the environment.



- Adverse impacts of development projects can be reduced with the full and equal participation of both genders, particularly women in decision-making processes.
- NGOs, civil society groups and local communities need to build their capacities to use the EIA notification towards better decision making on projects.

Conclusion:

- An EIA should not be used just as a means for obtaining an environmental clearance; rather, project proponents should use it as a management tool to assess the soundness of a project plan.
- The focus of EIA needs to shift from utilization and exploitation of natural resources to conservation of natural resources.

Q) “National Policy on Biofuels 2018 is essentially a resolution but not a solution in itself”. Critically analyse. (250 words)

Reference

Why this question:

The National Policy on Biofuels-2018 approved by the Government envisages an indicative target of 20% blending of ethanol in petrol and 5% blending of bio-diesel in diesel by 2030.

Key demand of the question:

The answer must analyse National Policy on Biofuels 2018 and critically discuss in what way it is not an end in itself.

Directive:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

Describe in brief the national biofuel policy 2018.

Body:

The answer must discuss the following aspects –

First discuss the salient features of national biofuel policy 2018.

Then discuss other than the policy what are the on ground requirements to propel the use of biofuels in India, discussion should debate about the availability of resources, technology etc. and justify that one policy alone would not change the energy scenario but a framework regulating the energy sector in a multi-pronged approach is the need of the hour.

Conclusion:

Conclude with solutions.

Introduction:

- Any hydrocarbon fuel that is produced from an organic matter (living or once living material) in a short period of time (days, weeks, or even months) is considered a biofuel. Biofuels may be solid, liquid or gaseous in nature.
- The National Policy on Biofuels-2018 approved by the Government envisages an indicative target of **20% blending of ethanol in petrol and 5% blending of bio-diesel in diesel by 2030.**

Body:

Salient features of National Policy on Biofuels, 2018:

- **Categorization:** The Policy categorises biofuels as “Basic Biofuels” viz. First Generation (1G) bioethanol & biodiesel and “Advanced Biofuels” – Second Generation (2G) ethanol, Municipal Solid Waste (MSW) to drop-in fuels, Third Generation (3G) biofuels, bio-CNG etc. to enable extension of appropriate financial and fiscal incentives under each category.
- **Scope of raw materials:** The Policy expands the scope of raw material for ethanol production by allowing use of Sugarcane Juice, Sugar containing materials like Sugar Beet, Sweet Sorghum, Starch containing materials like Corn, Cassava, Damaged food grains like wheat, broken rice, Rotten Potatoes, unfit for human consumption for ethanol production.
- **Protection to farmers:** Farmers are at a risk of not getting appropriate price for their produce during the surplus production phase. Taking this into account, the Policy allows use of surplus food grains for production of ethanol for blending with petrol with the approval of National Biofuel Coordination Committee.



- **Viability gap funding:** With a thrust on Advanced Biofuels, the Policy indicates a viability gap funding scheme for 2G ethanol Bio refineries of Rs.5000 crore in 6 years in addition to additional tax incentives, higher purchase price as compared to 1G biofuels.
- **Boost to biodiesel production:** The Policy encourages setting up of supply chain mechanisms for biodiesel production from non-edible oilseeds, Used Cooking Oil, short gestation crops.

Biofuel policy is not a panacea in itself:

- **Supply-chain infrastructure** that is required to deliver biofuels to the final consumer remains inadequate.
- To convert India's existing biofuel potential into reality, **huge investments** need to be made in creating bio refinery capacity. However, this is easier said than done. While state-owned oil marketing companies are in the process of setting up 12 bio-refineries, this can only be a base to build on.
- On the ground, **private sector investment in this space has been hampered by financial constraints and lack of cohesive support** from the Central to the local level.
- **Efficiently transporting low value biomass to the refineries is another challenge.**
- The policy is **totally silent on octane**, which has direct consequences on air quality and pollution as it assists in proper combustion of fuels, thereby affecting vehicular emissions.
- **Over ambitious:**
 - The policy states that a viability gap funding scheme for 2G ethanol bio refineries of Rs. 5,000 crore in 6 years in addition to additional tax incentives, higher purchase price as compared to 1G biofuels will be provided.
 - The policy is overambitious in light of the fact that the capability of 2G has not been realised till today. Therefore, completely relying on a mechanism which has not been proven commercially is flawed.

Way forward:

- Any bio-fuel policy must be strongly backed by sufficient technology and production scale in order to be financially feasible and implementable.
- Given the current market dynamics, sugar industry's share in the bio-fuel mix is unrivalled – thereby underscoring the need for better pricing for ethanol.
- The consideration for using food grains is a tricky one as food supply chains might get affected if there aren't proper checks.
- While source diversification is indeed a positive, proper enhancement of supply-chain infrastructure to reach the final consumer will prove vital.
- The government should also take steps to remove policy barriers that have discouraged private investment in building supply chains.

Conclusion:

- From encouraging the use of biofuels in public transport to ensuring that civic bodies actually realise the potential of municipal waste and sewage the policy needs to be implemented in mission mode on a nationwide basis.

Q) Discuss the concept of carbon tax, also analyse to what extent it can prove to be an effective policy instrument in achieving INDC targets for India. (250 words)

[Financialexpress](https://www.financialexpress.com)

Why this question:

The question is based on the concept of carbon tax and the utility of the same as an effective policy instrument.

Key demand of the question:

One must detail on the concept of carbon tax and list down its advantages and potential.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Define what is carbon tax.

Body:

Carbon tax is a form of pollution tax. It levies a fee on the production, distribution or use of fossil fuels based on how much carbon their combustion emits. The government sets a price per ton on carbon,



and then translates it into a tax on electricity, natural gas or oil. Because the tax makes using dirty fuels more expensive, it encourages utilities, businesses and individuals to reduce consumption and increase energy efficiency.

List merits –

Carbon tax also makes alternative energy more cost-competitive with cheaper, polluting fuels like coal, natural gas and oil.

Carbon tax offers social and economic benefits.

It is a tax that increases revenue without significantly altering the economy while simultaneously promoting objectives of climate change policy.

The carbon tax is the most practical method to reduce the fossil fuel consumption. It checks the use of fossil fuel.

It helps India to reach the committed INDC of 33% by 2030.

Conclusion:

Conclude with way forward.

Introduction:

- A carbon tax aims to **internalise the externality of climate change by setting a price on the carbon content of energy consumed or greenhouse gas emitted in the production or consumption of goods.**
- India is taking varied efforts to curb pollution and achieve the Intended Nationally Determined Contributions (INDC) targets under the Paris climate deal. In this regard, it is essential to understand the instrumental role that carbon tax could play.

Body:

Carbon tax as a potent mitigation policy:

- Carbon tax avoids the problems related to choosing a baseline. In a price approach, the natural baseline is a zero carbon tax.
- A carbon tax policy will be better able to adapt to the element of uncertainty which pervades the science of climate change. Quantity limits on emissions are related to the stocks of greenhouse gas emissions, while the price limits are related to the flow of emissions.
- From this uncertainty arises another complication of price volatility which is the reason why a carbon tax policy is likely to cause less volatility in the prices of carbon emissions
- Carbon tax primarily discourages environment unfriendly production and consumer practices by making the 'polluting sources' costlier.
- This works without any negative effect on overall employment and output levels.
- Putting a price on carbon and taxing it directly is far better than the 'cap and trade' system.
- This is because the carbon tax system has advantages due to its simplicity, affordability, transparency, revenue recycling and predictability of carbon prices.
- It works on the principle of 'the polluter pays'.
- The carbon tax will essentially be a **Pigovian Tax** which balances the marginal social costs and benefits of additional emissions, thereby internalising the costs of environmental damage. It can act as an incentive for consumers and producers to shift to more energy-efficient sources and products.

Way forward:

- Some countries and regions such as the U.S. and the European Union already have fairly successful carbon pricing regimes in place in the form of carbon taxes and emissions trading schemes.
- Some other countries have introduced general taxes on energy consumption instead of direct taxes on carbon content. This can be a good starting point for a shift in policy by countries while they deliberate on a harmonised carbon tax regime.
- India has to become a pioneer among emerging economies and impose an explicit carbon tax, and let the polluters pay.
- Another near-term approach can be a '**cap-and-tax**' which combines the strengths of both quantity and price approaches. Cap-and-tax might also address the concerns of environmentalists that a price-based approach does not impose hard constraints on emissions.

Conclusion:

- Carbon tax is the most basic economic instrument which can be used to price carbon and combat CO₂ emissions, and correct negative externalities.
- India should take up carbon tax as an effective policy instrument in reducing different local pollutants and achieving INDC targets.



Q) What is wetland ? Explain the Ramsar concept of ‘wise use’ in the context of wetland conservation. Cite two examples of Ramsar sites from India. (250 words)

previous year question, Indian geography by Majid Hussain, Environment by Shankar IAS Academy.

Why this question:

The question is straightforward and is based on the concept of wetland.

Demand of the question:

The answer must discuss the concept of wetland in detail and discuss the Ramsar concept of wise use.

Directive word:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction

Define Wetland.

Body

Wetlands are ecotones between terrestrial and aquatic ecosystems. They get periodically get inundated with water. They support a flourishing community of aquatic organisms including frogs and other amphibians. Swamps, marshes and mangroves are examples of wetlands.

Then discuss that the Ramsar “Wise use concept” requires that wetlands’ ecological character should be maintained within the framework of sustainable development.

Detail on the components of the concept. And conclude with examples.

Conclusion

Conclude with way forward and importance of such sites and conventions.

Introduction:

- The Ramsar Convention on wetlands defines wetland as including a wide variety of habitats such as marshes, peatlands, floodplains, rivers and lakes, and coastal areas such as salt-marshes, mangroves, and seagrass beds, also coral reefs and other marine **areas no deeper than six metres at low tide**. Wetland also includes **human-made wetlands such as waste-water treatment ponds and reservoirs**.
- Wetlands are ecotones between terrestrial and aquatic ecosystems. They get periodically get inundated with water. They support a flourishing community of aquatic organisms including frogs and other amphibians. Swamps, marshes and mangroves are examples of wetlands.

Body:

Ramsar “Wise use concept” requires that wetlands’ ecological character should be maintained within the framework of sustainable development. This concept recognizes that:

- **Developmental activities are inevitable** in wetland areas such as construction of roads, electricity infrastructure, schools and hospitals for poor families.
- **Economic activities are also inevitable** in wetland areas such as fisheries, farming and tourism.
- Such activities **aid in human development and economic development** in a wetland area.
- And for these activities, wetland’s land, water and bio-resources will have to be used.
- However, these **resources should not be used in a manner that wetland’s ecological character is harmed**.

The practical applications of “Wise Use” concept are as following:

- **Use of Water:** Farmers in wetland region require freshwater for cultivation of paddy, fruits and vegetables. But, it should not lead to overexploitation of freshwater else wetland’s regenerative capacity will suffer. Fish, reptiles and amphibians will die. Therefore, Government may impose legal ‘upper limits / ceiling’ on water use.
- **Use of Land:** Wetlands purify air and water, they moderate adverse weather impacts and thus protect human health. However, mining, infrastructure and transportation services harm wetlands, and thereby indirectly harm human health. Hence, the ‘land’ of wetland should be generally not used for such activities.
- **Use of Biomass:** Fishing is one of the primary occupations of people in Wetland area. But excessive fishing, especially during reproduction season will harm wetland’s foodweb. Hence, government may impose restriction and encourage aquaculture and ‘rice-fish’ management practices.

India currently has **27 sites** designated as Wetlands of International Importance (Ramsar Sites). Some of them are

- **Ashtamudi Wetland in Kerala**
- **Bhitarkanika Mangroves in Odisha**

Note: It is important to know all the site names from prelims and mains perspective

**Conclusion:**

- Wetland conservation is crucial for protecting biodiversity and mitigating the adverse impacts of climate change.
- At the same time, due to high level of poverty & population, it's not possible for developing countries & Least Developed Countries (LDCs) to keep wetlands in pristine conditions completely free from human activities.
- The "wise use" concept of Ramsar convention is a **notable attempt made to strike balance between these two opposing aspects**.

Topic: Disaster and disaster management.

Q) With warnings from India's policy-makers and reports of major cities in India struggling to cope with water crisis, exploring technologies to harness fresh water seems to be a ray of hope. Critically examine these technologies. How far would they be effective in preventing a water crisis in the future ? (250 words)

Livemint

Why this question:

The article discusses the major challenge of water crisis the country is facing and highlights the need of emerging technologies in addressing the issue.

Key demand of the question:

The answer must bring out the role that technology can play in harnessing effective ways of preventing water crisis in the coming future.

Directive:

Critically Examine – When asked to examine, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:**Introduction:**

Start with facts justifying the current water crisis conditions facing the country.

Body:

The question is straightforward and there isn't much to deliberate, students must first bring out the current conditions of water crisis in the country – state reasons, concerns posed etc. and then move on to explain in what way newer technologies can address the situation in an effective and sustainable manner.

Conclusion:

Conclude with significance of technology and put a word of caution that technology alone can not be a solution for the crisis but also awareness, sustainable use of water is the need of the hour.

Introduction:

- India is on the threshold of a very serious groundwater crisis, which needs mitigation both in the fields and at the policy corridors of the country.
- A World Bank study puts the plight of the country in perspective: 163 million Indians lack access to safe drinking water; 210 million Indians lack access to improved sanitation; 21% of communicable diseases are linked to unsafe water.
- Many Indian cities, including Delhi and Bangalore, face a water crisis, especially that of freshwater.

Body:**Technologies to harness fresh water:**

- **Rainwater Harvesting:** It is a process involving collection and storage of rain water (with the help of artificially designed system) that runs off natural or man-made catchment areas e.g. roof top, compounds, rock surface or hill slopes or artificially repaired impervious/semi-pervious land surface.
 - **Pros:** It reduces Runoff loss, helps meet rising demand of water by recharging the water table, No land is wasted for storage purpose and no population displacement is involved, increases the productivity of aquifer and reduces urban flooding.
 - **Cons:** High installation charges, lack of awareness and education,



- **Desalination:** It is a technology that converts salt water into freshwater using reverse osmosis (RO). Osmosis involves 'a solvent naturally moving from an area of low concentration, through a membrane, to an area of high concentration'
 - **Pros:** Abundance of Seawater around India. RO is commercially proven and the dominant technology. It is easier for attracting the private players.
 - **Cons:** RO plants convert seawater to fresh water, the major environmental challenge they pose is the deposition of brine (highly concentrated salt water) along the shores. This reduces the availability of prawn, sardine and mackerel. Environmentalists second this saying that hyper salinity along the shore affects plankton, which is the main food for several of these fish species. The construction of the RO plants required troves of groundwater. Desalinated water can also be acidic to both pipes and digestive systems.
- **Low Temperature Thermal Desalination (LTTD)** is one process that uses the availability of a temperature gradient between two water bodies or flows to evaporate the warmer water at low pressure and condense the resultant vapour with the colder water to obtain freshwater.
 - **Pros:** Better than the Desalination technique; simplicity of the LTTD process also enables to control the quality of product water in order to provide either good quality drinking water or boiler grade water as the situation warrants.
 - **Cons:** the LTTD technique draws power from diesel sets

The water crisis of India cannot be solved by just one type of solution. Thus, technology alone cannot be a panacea. There is a need for multi-pronged solution to tackle the crisis of water.

Other measures needed:

- India's priority must be:
 - To make our irrigation and water systems amenable to modern concepts.
 - To complete irrigation and water sector reforms.
 - To implement improved water management, governance and regulation practices.
 - Pricing system for water: For making people use water efficiently
- Deepen our understanding of our water resources and usage and put in place interventions that make our water use efficient and sustainable.
- Augmentation of watersheds that can store more good water, for use in agriculture and to serve habitations.
- Strict pollution control enforcement.
- **Decentralisation of irrigation commands**, offering higher financial flows to well-performing States through a **National Irrigation Management Fund**.
- Groundwater extraction patterns need to be better understood through **robust data collection**.
- Pollution can be curbed by levying suitable costs.
- Poor maintenance of pipelines, consistent leakage and illegal tapping of water are some of the issues that need to be addressed on a war-footing.
- Adopting rainwater harvesting techniques is the need of the hour.
- A legal mandate will work better than just competition and cooperation; it would make governments accountable.
- These forward-looking changes would need revamped national and State institutions, and updated laws.
- Urban India needs to focus on recycling and harvesting water, having better testing and purification facilities and increase public awareness on the need to conserve water.
- Large catchment areas need to be developed around water bodies so that natural recharge of groundwater takes place. A good example is the **Seog catchment area** which has been denoted as a wildlife sanctuary and where no construction is allowed.
- Greywater recycling, a method of recycling wastewater from kitchen sinks, showers and laundry fixtures.
- Greywater recycling helps reduce household water usage by about 50% .
- This year's World Water Development Report makes it clear that nature-based solutions which are also aligned with the principles and aims of the 2030 Agenda for Sustainable Development can offer answers to our most pressing water-related challenges.

Conclusion:

- There is a need for credible environmental and cumulative impact assessments, genuine public consultation process at multiple stages of planning and project implementation, confidence-inspiring appraisal, which



includes the appointment of independent experts, and most crucially, achieving some real monitoring and compliance.

- The **water governance** ought to be made **transparent, accountable and participatory** in every sub-sector, including management of rivers, groundwater, floods, and biodiversity, among others.

Extra information: Ancient Indians understood the art of water governance. Most of India's traditional water management has been at the community level; relying upon diverse, imaginative and effective methods for harvesting, storing, and managing rainfall, runoff and stream flow. Some of the traditional water conservation structures:

- **Phad** – It is a community-managed irrigation system in the Tapi river basin in Maharashtra. It starts with check dam built across a river and canals to carry water to agricultural blocks with outlets to ensure excess water is removed from the canals.
- **Zing** – It is found in Ladakh, are small tanks that collect melting glacier water. A network of guiding channels brings water from the glacier to the tank.
- **Kuhls** – They are surface water channels found in the mountainous regions of Himachal Pradesh. The channels carry glacial waters from rivers and streams into the fields.
- **Zabo or Ruza System**– It is practised in Nagaland. Rainwater that falls on forested hilltops is collected by channels that deposit the run-off water in pond-like structures created on the terraced hillsides.
- **Jackwells** – The Shompen tribe of the Great Nicobar Islands uses this system, in which bamboos are placed under trees to collect runoff water from leaves and carries it to jackwells which are pits encircled by bunds made from logs of hard wood.
- **Pat system** – It is developed in Madhya Pradesh, in which the water is diverted from hill streams into irrigation channels by diversion bunds. They are made across the stream by piling up stones and teak leaves and mud.
- **Eri** – It is tank system, widely used in Tamil Nadu which acts as flood-control systems, prevent soil erosion and wastage of runoff during periods of heavy rainfall, and also recharge the groundwater.
- **Johads** – They are small earthen check dams used to conserve and recharge ground water, mainly constructed in an area with naturally high elevation.
- **Panam keni** – The Kurumba tribe (a native tribe of Wayanad) uses wooden cylinders as a special type of well, which are made by soaking the stems of toddy palms and immersed in groundwater springs.
- **Ahar Pynes** – They are traditional floodwater harvesting systems indigenous to South Bihar. Ahars are reservoirs with embankments on three sides and Pynes are artificial rivulets led off from rivers to collect water in the ahars for irrigation in the dry months.
- **Jhalara** – Jhalaras are typically rectangular-shaped stepwells that have tiered steps on three or four sides in the city of Jodhpur.
- **Bawari** – Bawaris are unique stepwells that were once a part of the ancient networks of water storage in the cities of Rajasthan.
- **Taanka** – It is a cylindrical paved underground pit into which rainwater from rooftops, courtyards or artificially prepared catchments flows. It is indigenous to the Thar Desert region of Rajasthan.
- **Khadin** – Also called dhora, is a long earthen embankment that is built across the hill slopes of gravelly uplands. It is indigenous to Jaisalmer region and similar to the irrigation methods of Ur region (Present Iraq).
- **Kund** – It is a saucer-shaped catchment area that gently slopes towards the central circular underground well. It is found in the sandier tracts of western Rajasthan and Gujarat.

Q) Discuss the concept of community-based Disaster Management and highlight its principles and challenges. (250 words)

National policy on disaster management. IGNOU Notes on Disaster Management.

Why this question:

The question is directed to evaluate the significance of community-based Disaster Management.

Key demand of the question:

The answer must discuss in detail the community-based Disaster Management- its features, importance and challenges.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

**Structure of the answer:****Introduction:**

Begin with brief on what you understand by community-based Disaster Management.

Body:

Discussion should include the following:

Community-based disaster management (CBDM) is an approach to building the capacity of communities to assess their vulnerability to both human induced and natural hazards and develop strategies and resources necessary to prevent and/or mitigate the impact of identified hazards as well as respond, rehabilitate, and reconstruct following its onset.

Explain the principles of CBDM.

CBDM empowers communities to be pro-active in disaster management and creates a space for them to develop strategies on their own terms rather than waiting for already overstretched governments and NGO's.

Bring out associated challenges if any.

Conclusion:

Conclude with way forward.

Introduction:

Community-based disaster management (CBDM) is an approach to building the capacity of communities to assess their vulnerability to both human induced and natural hazards and develop strategies and resources necessary to prevent and/or mitigate the impact of identified hazards as well as respond, rehabilitate, and reconstruct following its onset. Simply put, the aim of CBDM is to

- reduce vulnerabilities and increase capacities of vulnerable groups and communities to cope with, prevent or minimize loss and damage to life, property, and the environment,
- minimize human suffering
- Hasten recovery.

Body:**Importance of CBRDM:**

- The same plan, regardless of the regional characteristics, is implemented or imposed everywhere.
- Local knowledge, experiences, skills, resources and techniques are not given due importance. Rather external resources and techniques are proposed to be utilized.
- Negligence about local cultural instincts and heritage.
- Prioritisation is decided by an outsider and not the stakeholders or the community itself.
- Local community does not have any information about the disaster management plans for their area and the role of different sectors in helping the community during disasters.

Advantages of CBRDM:

- Feelings of coordination and self belonging to the society are developed.
- Local geo-climatic and socio-cultural characteristics get attention of the people in development and disaster management.
- Local initiatives begin and community provides assistance to the executing agencies involved in disaster management.
- There is exchange of knowledge, information, skills and techniques between the community and the experts involved from outside.
- Community comes forward to put forward its ideas for selection of appropriate programmes suitable to their locality and society.
- Community can monitor the quality of works being done in its locality. It will also generate a sense of responsibility among the community.
- It will lead to capacity building of the community on issues of disaster-safe developmental activities.

Conclusion:

- There is a need for coordination in the Community-Based Approach among all the stakeholders.
- This bottom-up, participatory approach can make community members more receptive of new knowledge and information presented to them.



Q) Highlight development perspective to disaster management with focus on disaster management in riverine regions. (250 words)

National policy on disaster management. IGNOU Notes on Disaster Management.

Why this question:

The question aims to analyse the development angle possible in riverine regions that are hit by disasters.

Key demand of the question:

Explain in detail the development aspects associated with disaster hit region and in what way they are essential in overall development of the region.

Structure of the answer:

Introduction:

In brief explain the significance of development in disaster hit regions.

Body:

Explain that with the kind of economic losses and developmental setbacks that the country has been suffering year after year, it makes good economic sense to spend a little extra today in a planned way on steps and components that can help in prevention and mitigation of disasters, then be forced to spend many multiples more later on resto-ration and rehabilitation. The design of development projects and the process of development should

take the aspect of disaster reduction and mitigation within its ambit; otherwise, the development ceases to be sustainable and eventually causes more hardship and loss to the nation.

Quote a case study from recent times – Assam floods etc. to justify your answer.

Conclusion:

Conclude by suggesting way forward.

Introduction:

- India is vulnerable, in varying degrees, to a large number of disasters. Floods affect an average area of around 7.5 million hectares per year.
- According to the National Commission on Floods, the area susceptible to floods was estimated in 1980 to be around 40 million hectares and it is possible to provide reasonable degree of protection to nearly 80 per cent (32 million ha). Riverine flooding is perhaps the most critical climate-related hazard in India.

Body:

India's key vulnerabilities:

- Coastal states, particularly in the eastern coast and Gujarat on the west coast are vulnerable to cyclones.
- 4 crore hectare land mass is vulnerable to floods.
- 68% of the net sown area is vulnerable to drought.
- 55% of total area is in Seismic zones –III to V and vulnerable to earthquakes.
- Sub-Himalayan region and Western Ghats are vulnerable to landslides.

Disasters lead to enormous economic losses that are both immediate as well as long term in nature and demand additional revenues. Also, as an immediate fall-out, disasters reduce revenues from the affected region due to lower levels of economic activity leading to loss of direct and indirect taxes. In addition, unplanned budgetary allocation to disaster recovery can hamper development interventions and lead to unmet developmental targets.

With the kind of economic losses and developmental setbacks that the country has been suffering year after year, the development process needs to be sensitive towards disaster prevention and mitigation aspects. There is thus need to look at disasters from a development perspective as well.

Current institutional measures to tackle such incidences:

- The **National Cyclone Risk Mitigation Project (NCRMP)**, to be implemented with financial assistance from the World Bank, is envisaged to have four major components:
 - Component A: Improvement of early warning dissemination system by strengthening the Last Mile Connectivity (LMC) of cyclone warnings and advisories.
 - Component B: Cyclone risk mitigation investments.
 - Component C: Technical assistance for hazard risk management and capacity-building.
 - Component D: Project management and institutional support.
- These components are highly interdependent and have to be implemented in a coherent manner.



- In 2016, **National Disaster Management Plan** was unveiled to tackle disaster. It provides a framework to deal with prevention, mitigation, response and recovery during a disaster.
- The **NDMA** had come up with its **National Guidelines of Management of Cyclones in 2008**. The basic premise of these guidelines is that the mitigation has to be multi-sectoral.
- Developing Integrated Coastal Zone Management (ICZM) frameworks for addressing the sustainability and optimal utilisation of coastal resources as also cyclone impact minimisation plans.
- Ensuring cyclone resistant design standards are incorporated in the rural/ urban housing schemes in coastal areas
- **Implementing coastal flood zoning, flood plain development and flood inundation management and regulatory plans.**
- **Coastal bio-shields** spread, preservation and restoration/ regeneration plans.
- There is a need for **private sector participation in designing and implementing policies, plans, and standards.**
- Need of **Disaster Management program to be inclusive including women, civil society, and academia.**

Way forward:

- For addressing natural calamities such as floods and drought, there already exist a number of plan schemes under which a lot is being done and can be done.
- State Governments need to make full use of the existing plan schemes and give priority to implementation of such schemes that will help in overcoming the conditions created by the calamity.
- Reconstruction efforts must involve rebuilding in a better way. Climate proofing in Kerala calls for structures to be built with wind- and water-resistant materials.
- People need to relocate out of harm's way. During the 2015 floods, Chennai illustrated the price of unrestricted urban development.
- Early warning is vital. Because of investments in these systems, Cyclone Phailin (2013) claimed less than 40 lives in Odisha. In Kerala, there was no timely forecast from national weather services. The State needs a reliable flood forecasting capability.
- There needs to be tougher implementation of logging and mining regulations in fragile ecologies. Deforestation worsened the effects of Kerala's floods and mudslides, as the report of the Western Ghats ecology expert panel 2011 had warned.
- Non-structural measures for flood forecasting provide early warning in flood prone areas have proved to be successful for flood management. High-tech warning systems on the ground will not be useful until the authorities, key stakeholders and communities are trained to act upon the information obtained from these facilities.
- Different stakeholders need to come together for mapping risks, vulnerabilities, and resources, engage in regular preparedness actions like drills and capacity building, develop and update emergency plans, check the availability of resources at the local level and act upon early warning intimations.

Conclusion:

- India should prepare to mitigate and deflect the destruction caused by riverine floods. We need to employ technology, strict following of command structure and most importantly the participation and cooperation of local communities in the affected area.

Q) Discuss the role of Information Technology in disaster prevention. (250 words)

NIOS notes on disaster management

Why this question:

The question expects us to bring out the role of various facets of Information and technology in prevention of disasters as well as in managing the aftermath of disaster.

Key demand of the question:

The answer must talk about role played by technology in effectively managing and preventing disasters.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Begin with brief introduction on what are disasters.

**Body:**

Discussion should include the following:

Define disaster management- e.g Disaster management is a systematic process with primary aim to reduce the negative consequences and effect of disasters, hence safeguarding people and social infrastructure.

Discuss in points, how big data can play a role in disaster management. E.g Big data generated from geo-informatics and remote sensing platforms can contribute to early warning systems for disasters. Geographical Information Systems (GIS), Global Positioning Systems (GPS) and environmental monitoring sensors with cloud services have a potential to predict disasters; Geoinformatics information along with transportation network data can benefit to understand human mobility patterns during disasters; social data sets; financial data sets etc.

Also discuss the role of internet etc. in disaster handling.

Conclusion:

Conclude with way forward.

Introduction:

- India is a large country and prone to a number of natural hazards. Among all the natural disasters that country faces, river floods are the most frequent and often devastating. The shortfall in the rainfall causes droughts or drought like stimuli in various parts of the country. The country has faced some severe earthquakes causing widespread damage to the life and property.
- India has a coastline of about 8000 km which is prone to very severe cyclonic formations in the Arabian Sea and Bay of Bengal. Another major problem faced by the country is in the form of landslides and avalanches.

Body:**The role of Information Technology in disaster prevention:****GIS AND REMOTE SENSING:**

- GIS provides a tool for effective and efficient storage and manipulation of remotely sensed data and other spatial and non-spatial data types for both scientific management and policy oriented
- This can be used to facilitate measurement, mapping, monitoring and modelling of variety of data types related to natural phenomenon.
- The specific GIS application in the field of Risk Assessment are Hazard Mapping to show earthquake, landslides, floods or fire hazards.
- Theses map could be created for cities, districts or even for the entire country and tropical cyclone Threat Maps are used by meteorological departments to improve the quality of the tropical storm warning services and quickly communicate the risk to the people likely to get affected by the
- eg.: GIS and Remote Sensing can be used for preparing seismic hazards maps in order to assess the exact nature of risks.
- GIS can be used in carrying out search and rescue operations in a more effective manner by identifying areas that are disasters prone and zoning them accordingly to risk magnitudes

INTERNET

- In the present era of electronic communication, the internet provides a useful platform for disaster mitigation communications.
- Launching of a well defined web site is a very cost-effective means of making an intra-national and international presence felt.
- It provides a new and potentially revolutionary option for the rapid, automatic, and global dissemination of disaster information. A number of individuals and groups, including several national meteorological services, are experimenting with the Internet for real-time dissemination of weather observation, forecasts, satellite and other
- In the most critical phase of natural disasters electronic communication have provided the most effective and in some instances perhaps the only means of communication with the outside world.

WARNING AND FORECASTING SYSTEM

- An advance system of forecasting, monitoring and issuing early warnings plays the most significant role in determining whether a natural hazard will assume disastrous proportions or
- Indian Metrological Department (IMD) provides cyclone warnings from the Area Cyclone Warning Centres (ACWCs) It has developed the necessary infrastructure to originate and disseminate the cyclone warnings at appropriate



- Seismological observations in the country are made through national network of 36 seismic stations operated by the IMD, which is the nodal
- Long term drought proofing programmes on the natural resources of the district have been greatly helped by the use of satellite data obtained by National Remote Sensing Agency.
- The drought assessment is based on a comparative evaluation of satellite observed green vegetation cover (both area and greenness) of a district in any specific time period by the National Agricultural Drought Assessment and Management System (NADAMS).
- Flood forecasts and warnings are issued by the Central Water Commission (CWC), Ministry of Water Resources. These are used for alerting the public and for taking appropriate measures by concerned administrative and state engineering agencies in the flood hazard

Conclusion:

- Advancement in Information Technology in the form of Internet, GIS, Remote Sensing, Satellite communication, etc. can help a great deal in planning and implementation of hazards reduction.
- For maximum benefit, new technologies for public communication should be made use and natural disaster mitigation messages should be conveyed through these measures.

Q) The ingenuity of the Coalition for Disaster Resilient Infrastructure (CDRI) clearly reflects India's commitment in promoting disaster resilient infrastructure and next major foreign policy innovation. Elucidate. (250 words)

Livemint

Why this question:

This article covers "Will India's idea on disaster management gain global support". It talks about the prospects of Coalition for Disaster Resilient Infrastructure. Indian Prime Minister, at the Hamburg G20 meet in 2017, proposed Coalition for Disaster Resilient Infrastructure (CDRI). It may be taken up at the G7 meet next month in Biarritz, where India has been invited by hosts France, along with Australia, Chile and South Africa.

Key demand of the question:

The answer must discuss the concept in detail and the significance of it in managing disasters.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Describe what is 'Coalition for Disaster Resilient Infrastructure'.

Body:

Each time a natural disaster occurs anywhere in the world, countries try to provide immediate relief, but there is no focus on building disaster-resilient Infrastructure.

In this context, Indian PM proposed CDRI which will act as a convening body that will pool best practices and resources from around the world for reshaping construction, transportation, energy, telecommunication and water, so that building in these core infrastructure sectors factors in natural catastrophes.

CDRI could fill this gap of funds and technology and help developing countries to build disaster-resilient Infrastructure.

For instance, India is a world leader in preventing human deaths due to disasters. The United Nations Office for Disaster Risk Reduction (UNISDR) has praised India's zero casualty approach and playing a pioneering role model for global community for drawing up a national and local strategy to reduce disaster losses and risks.

Conclusion:

Conclude that India's initiative for Coalition for Disaster Resilient Infrastructure will help in the development of appropriate infrastructure to face the least developed and developing countries with natural calamities.



Introduction:

- The **Coalition for Disaster Resilient Infrastructure (CDRI)**, as proposed by Indian Prime Minister, will act as a **convening body that will pool best practices and resources from around the world for reshaping construction, transportation, energy, telecommunication and water, so that building in these core infrastructure sectors factors in natural catastrophes.**

Body:

Need for CDRI:

- According to Sendai framework, every \$1 spent in disaster risk reduction leads to gain of \$7. But developing countries face the dilemma of balancing economic investment for development vs disaster resilient infrastructure.
- CDRI could fill this gap of funds and technology and help developing countries to build disaster-resilient Infrastructure.
- Suppose a disaster strikes a country, the affected nation could approach CDRI for technical and financial help, thus shielding it from excessive damage and devastation.
- **Post-calamity resuscitation and reconstruction** to strengthen local infrastructure and soften the blow of the next disaster, is a farsighted approach.
- It can only work if there is domestic political will, which is reinforced at the multilateral level through CDRI.

India's commitment in promoting disaster resilient infrastructure

- The Prime Minister pledged a funding of ₹480 crore (\$70 million) for CDRI in G20 summit in Osaka to promote the idea and invite greater international participation.
- India's initiative for Coalition for Disaster Resilient Infrastructure will help in the development of appropriate infrastructure to face the least developed and developing countries with natural calamities.
- CDRI could fill a real gap at a time when climate change-induced floods, cyclones and fires have multiplied in destructive force.
- For instance, India is a world leader in preventing human deaths due to disasters. The United Nations Office for Disaster Risk Reduction (UNISDR) has praised India's zero casualty approach and playing a pioneering role model for global community for drawing up a national and local strategy to reduce disaster losses and risks.

Foreign policy innovation:

- CDRI will boost India's soft power, but more importantly it has wider connotation than just economics, as synergy between disaster risk reduction, SDG and Climate Accord provides for sustainable and inclusive growth
- The United Nations Office for Disaster Risk Reduction (UNISDR) has praised India as a pioneering role model for drawing up a national and local strategy to reduce disaster losses and risks.
- If India is a world leader in preventing human deaths in disasters, it is not so adept in protecting property and infrastructure from extreme weather havoc. This is where CDRI is looking to tap into the expertise of Japan.
- CDRI will also complement India's efforts to bring together a coalition of countries harnessing solar power under the International Solar Alliance framework

Case Studies:

- Japan is prone to recurrent killer earthquakes, tsunamis and typhoons, but it has overcome these liabilities through improved building rules, stricter zoning laws and regulations since the 1980s, making it the world's safest and most disaster-resilient country.
- In Latin America, Chile has similarly learnt lessons from past catastrophes and drastically cut down casualties and losses from disasters through well-regulated building standards.

Conclusion:

- Each time a natural disaster occurs anywhere in the world, countries try to provide immediate relief, but there is no focus on building disaster-resilient Infrastructure. CDRI would help fill this gap and India can play a crucial role in setting a global example.

Q) In a large and diverse country like India, authorities are regularly confronted with large-scale protests, riots; incidents of mass civil disorder and crowd disasters. While keeping in focus the NDMA guidelines on Crowd Disaster Management, discuss the various issues faced by government. (250 words)

Reference



Why this question:

The question aims to analyse the disaster management in crowds and various issues faced by the government in dealing with the same.

Key demand of the question:

The answer must analyse what is crowd disaster management and provide for relevant discussions.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Describe what is crowd disaster management.

Body:

The discussion must cover the following aspects:

What are the different types of disasters associated with crowd ranging from stampede, fire incidences, floods etc.

Discuss the causes and consequences, suggest the framework provided by NDMA for crowd disaster management.

Conclusion:

Conclude with need for following best practices and rules and regulations in place.

Introduction:

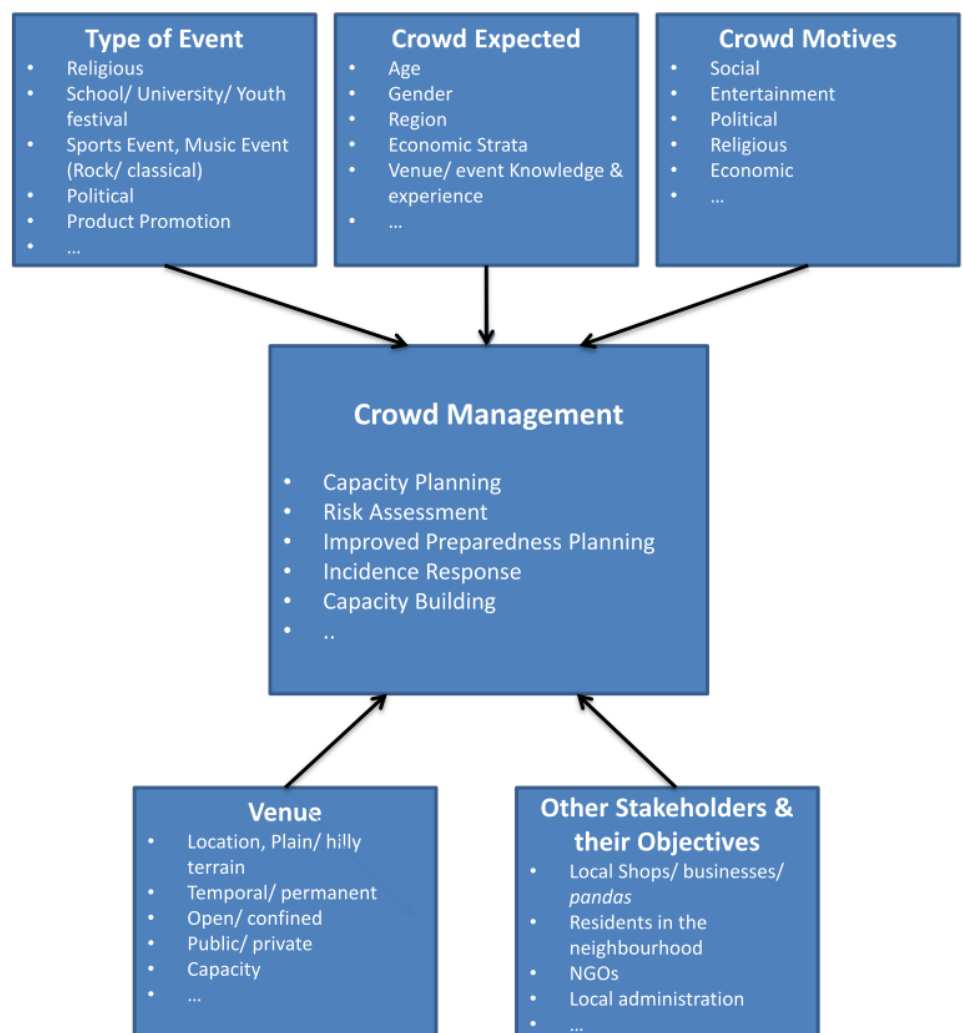
- Poor crowd management mechanism in India has lead to many unprecedented tragedies in India. From religious shrines to railway stations- frequent incidents of human stampedes are an unfortunate reality of Indian life.

Body:

- National Guide on Crowd Management-NDMA:** In view of the recurring stampedes at places of mass gathering, including religious places, and typically ad-hoc responses to those, the National Disaster Management Authority (NDMA) had prepared 'Suggestive Framework for Preparation of Crowd Management Plan for Events/Venues of Mass Gathering'.

Issues faced by Government:

- Governance and accountability:** There are lots of provisions in existing acts and rules for effective crowd management. However, enforcement and implementation are the key challenges faced by the administrator and law enforcement agencies. **g.:** Dabwali fire tragedy and Uphaar Cinema Tragedy are the typical examples of lackadaisical approach to crowd safety.





- **Poor infrastructure:** Lack of sufficient manpower in permit granting bodies, political pressure. Deployment of untrained security personnel in order to save cost.
- **No crowd management plan:** A major issue highlighted by recurring stampedes is the poor crowd management by concerned authorities. The state governments and local authorities have not yet implemented the NDMA guidelines on crowd management.
- **Rising population:** With rising population and rapid urbanization, urban areas are likely to be more susceptible along with places of frequent mass gatherings like temples.
- **Tolerance to crowd:** According to scholar Teresa Moore, large-scale events in India are more susceptible to stampedes because of a greater tolerance for high-density crowds. The higher tolerance for crowded places in India allows for more people to get closer, because they don't feel uncomfortable until it's very packed.

Measures needed: Some salient points from the NDMA guidelines are as follows:

- **Crowd Queues:** Initial focus should be on traffic regulations around the mass gathering venues. There should be a route map for venues along with emergency exits route maps. Also, there should be Barricade facility to control the movement of crowd queues. In case of large crowd gathering, there should be snake line approach, along with constant monitoring of crowds for developing hazard points.
- **VIPs:** There should be specific plans to handle VIPs and if VIPs add the security concerns then authorities should refuse entry to VIPs.
- **Communications:** There should be CCTV surveillance, along with another public address system, such as loudspeakers should be installed at all crowded points, in order to communicate with the crowds.
- **Medical facilities:** Ambulance and health care professionals should be available on venues. NDMA has recommended the medical first-aid rooms and emergency operations in order to handle post-disaster emergencies.
- **Basic facilities:** The venue Organisers should ensure authorised use of electricity, fire safety extinguishers and other arrangements as per the safety guidelines.
- **Civil society:** Police authorities should access the preparedness. Also, Event/venue managers should involve NGOs and civil society in traffic control, medical assistance and mobilization of local resources in case of disaster.
- **Capacity building:** In order to be proactive, there is need to focus on the capacity building. Also, the training manual should be periodically in order to usher in new crowd management technique. Apart from that if there is issue of insufficient Security personnel, students, NGOs and civil society should be roped in. Also, the media should be trained to manage communications during crowd disasters.
- **Use of technology:** Smart phones have been used to detect crowd dynamics such as pedestrian flows and bottlenecks, and social groups. Event/venue managers should get liability insurance for their visitors. Example, Shri Maa Vaishnodevi Shrine Board has insurance cover against any accidental casualty for visitors.
- **Awareness Generation Campaign:** A campaign to educate the public that railway tracks cannot be treated as commons, and vigorous enforcement, will reduce the probability of train related disasters like the Amritsar case.

Conclusion:

- In most of the cases, the crowd disasters are man-made disasters and such tragedies can be prevented with proactive planning and execution by the authorities involved.
- Apart from that lessons should be learnt from past mistakes. Every member of society is the stakeholder in such disaster prevention. NDMA should also focus on a central repository of incidences so that lessons can be learnt from past.

Q) Evaluate the relationship between Disaster and Development. To what extent this relationship is significant to policy makers? Discuss. (250 words)

Why this question:

The question seeks to evaluate the relationship between development and disasters.

Key demand of the question:

The answer must discuss the relationship between development and disasters and its significance to policy makers.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.



Evaluate – When you are asked to evaluate, you have to pass a sound judgement about the truth of the given statement in the question or the topic based on evidences. You have to appraise the worth of the statement in question. There is scope for forming a personal opinion here.

Structure of the answer:

Introduction:

Begin with brief that Development schemes can both increase and decrease vulnerability. In the traditional approach to disasters, the attitude was that the disasters, especially natural ones, were an act of god and as such were beyond human control; accepting death and damage to property was part of the costs.

Body:

Discussion should include the following:

What is the relationship between disaster and development?

How is development linked with disaster?

What is development disaster management?

What is disaster development nexus?

Conclusion:

Conclude with way forward.

Introduction:

- A disaster is an unforeseen event, which can overwhelm the capacity of the affected people to manage its impact. Disaster management efforts aim to reduce or avoid the potential losses from hazards, assure prompt and appropriate assistance to the victims of a disaster, and achieve a rapid and effective recovery.

Body:

- Disasters and development are closely linked. Disasters can both destroy development initiatives and create development opportunities. Development schemes can both increase and decrease vulnerability.

Disaster-Development

| | | Economic Development | Social Development |
|-----------------------------------|--|--|--|
| Disaster limits development | | Destruction of fixed assets. Damage to transport, communication, infrastructure. Erosion of livelihood. | Destruction of health or education infrastructure and personnel. Death, migration of key social actors leading to an erosion of social capital. |
| Development causes disaster risk | | Unstable development practices that create wealth for some at the expense of unsafe working or living conditions for others or degrade the environment. | Development path generating cultural norms that promote social isolation or political exclusion. |
| Development reduces disaster risk | | Access to adequate drinking water, food, waste management and a secure dwelling increases people's resilience. Trade and technology can reduce poverty. Investing in financial mechanisms and social security can cushion against vulnerability. | Building community cohesion, recognising excluded individuals or social groups, and providing opportunities for greater involvement in decision-making, enhanced educational and health capacity increases resilience. |

- Nations increase their capacities and decrease their vulnerabilities through development. Development planning is used by governments to draft plans to guide economic and social development. The concept of **sustainable development** is widely recognized by international agencies and by governments, although its definition is not universally agreed upon. Sustainable development is the outcome of comprehensive planning that incorporates considerations of disaster risk (reducing hazards and vulnerability) as well as strategies designed to protect the environment and to improve economic growth, levels of education, and living conditions of the entire population
- **The Sendai Framework for disaster reduction also focuses on development of Disaster Resilient Infrastructure, reducing the disaster risk, Building back better.**

**Conclusion:**

- The holistic approach to integrating disaster with development has been emphasized and practiced by policymakers and public managers of local communities.
- Disasters can be seen as a “**window of opportunity**” for development and **well-planned development** can certainly reduce impacts of disasters.

Case Study: Disasters can provide unique windows of opportunity in development. In the wake of the 1986 earthquake in El Salvador, the health sector took advantage of the severe damage to the large Children’s Hospital to restructure and decentralize services so that the nation would not be dependent on the services of one “megahospital.” The El Salvador earthquake also had extreme social and developmental consequences: scarcity of housing, high unemployment (26-35%), and a reduced capacity in public health facilities. Hurricane Joan, which ravaged the Atlantic coast of Nicaragua in 1988, also had serious effects on an already failing economy during a difficult political and economic period.

TOPIC: Linkages between development and spread of extremism; Role of external state and non-state actors in creating challenges to internal security.

Q) What is meant by radicalisation ? What are its types and how does India deal with radicalisation ? Discuss. (250 words)

[Timesofindia](https://www.timesofindia.com)

Why this question:

The question aims to analyse the concept of radicalization.

Key demand of the question:

Explain in detail the concept of radicalization, its types and in what way India deals with deradicalization.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:**Introduction:**

In brief define radicalization.

Body:

Explain the context of question with the help of recent incidences, explain what are the different types of radicalization – Right-Wing Extremism, Politico-Religious Extremism, Left-Wing Extremism etc. Then discuss India’s efforts in this direction to deradicalize.

Conclusion:

Conclude that the problem of radicalization has seen an uptrend and in absence of any clear policy will continue to spread. It is important therefore to conduct meaningful research to aid the development of a framework that not only deals with de-radicalization but also rehabilitate the misguided youth of the nation.

Introduction:

- The word “radical” refers to **change in the fundamental nature of something**, thus Radicalism is **set of beliefs or actions of people who advocate thorough or complete political or social reform**.
- Radicalisation refers to the **process of an individual’s transformation from a moderate, law-abiding citizen into an active, anti-state, violent extremist**.

Body:**Types of Radicalisation:**

- **Right-Wing Extremism:** It is characterized by the violent defence of a racial, ethnic or pseudo-national identity, and is also associated with radical hostility towards state authorities, minorities, immigrants and/or left-wing political groups. E.g.: Ku Klux Klan in USA.
- **Politico-Religious Extremism:** It results from political interpretation of religion and the defence, by violent means, of a religious identity perceived to be under attack (via international conflicts, foreign policy, social debates, etc.). Any religion may spawn this type of violent radicalization. E.g.: ISIS using Islam as an alibi.



- **Left-Wing Extremism:** It focuses primarily on anti-capitalist demands and calls for the transformation of political systems considered responsible for producing social inequalities, and that may ultimately employ violent means to further its cause. It includes anarchist, Maoist, Trotskyist and Marxist-Leninist groups that use violence to advocate for their cause. E.g.: Naxalism in India.
- **Internet Radicalization:** Internet is used by terrorist as an effective tool for radicalisation and terror financing. Terror groups use the internet to advocate the use of violence to further a religious, ideological or political cause.

Steps needed to deal Radicalism in India:

- A **consistent counter radical strategy** is required to tackle radicalism.
- **Institutions have to be strengthened:** Educational and political institutions should be strengthened at ground level so that people of any state feel empowered. Also, enough number of job opportunities should be provided to people to decrease their chances of joining any radicalist organization.
- Central agencies like RAW, IB to play important role in covert operations to know the extremist propaganda and to inform the state special cell regarding the mechanism to regulate the actions of the radicalized youth.
- There should be sufficient evidence behind banning any organization. This is necessary to avoid court cases. Also, Intelligence Agencies, Law Enforcement Agencies and Judicial Courts need to act in unison on this matter.
- Once government identifies any radicalist organization, it needs to **take hold of their physical and financial resources**.
- **Countering activities of radicalists.** If hate can be taught, then love and social responsibilities toward people and the nation can also be taught. This is necessary to de-radicalize people.
- It needs to be ensured that people who been de-radicalized feel safe and secure in the country.
- The corner stone for radicalization is **poverty, deprivation and isolation and lack of employment and standard education opportunities, these to be addressed** by the government and policies to be formulated for inclusive participation and facilitation of all means for their development.
- **Political executive** plays an important role in drawing the youth into decision making and giving responsibility for the development of the community.
- **Social media to be regulated** when such info of such activities to be held and to draw a legalized guide lines to regulate in due means without contradicting the privacy of an individual.

Conclusion:

- Radicalisation is a danger to internal security and polarises the Indian society deepening the sectarian differences.
- Thus it is imperative to fight radicalisation on all fronts. Initiatives like UDAAN they must be inclusive in nature and drag youth from all sections, Nehru yuva kendra to be given impetus in such areas to involve youth in all capacity, cultural and sports activities so there are less chances for them to get influenced from such ideological goals.

Q) Do you agree that underdevelopment often creates the conditions for insurgency and spread of extremist ideologies among the people, who perceive that their needs are not being taken care of by the government ? Discuss in detail the linkage between development and spread of extremism. (250 words)

Reference

Why this question:

The question is based on the static portions of the GS -III paper, it aims to analyse the linkage between development and spread of extremism.

Key demand of the question:

The answer must analyse in detail the linkage between development and spread of extremism.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Begin with brief introduction on extremism.

**Body:**

Explain how it is true that underdevelopment often creates the conditions for insurgency and spread of extremist ideologies among the people, who perceive that their needs are not being taken care of by the government. While it has been the policy of governments around the world today to emphasize on “inclusive development”, there are always groups in every state who feel alienated because they perceive that they are left out of the developmental efforts. Such perceptions coupled with inefficient and corrupt governance create an ideal condition for extremism and militancy. More than lack of development, it is the perception of injustice, misgovernance and inability of the system to engage the disaffected lot that lead people to violence and extremism.

Conclusion:

Conclude with way forward.

Introduction:

- Extremism can be defined as **any ideology considered to be far outside the mainstream attitudes of a society or to violate common moral standards**. It means an ideology deflected from the mainstream of common moral standards which can be perceived as good or bad depending upon the political and philosophical values.
- Improvement in standard of living is something that everyone craves for and deserves it too. It involves, apart from decent food clothing and shelter, quality education and health and also dignified living.

Body:**Causes for Extremism:**

- **Lack of governance:**
 - Governance is considered the most important issue as we lack a long term strategic perspective. Government has been giving more priority to Industrialization and less preference to development of tribal areas. Tribals have been denied their constitutional rights and justice.
- **Socio-economic issues:**
 - With regards to socio economic issues education must be the prime intervention and this needs to be addressed with innovation. Once education enters the blood stream of the people of particular region they would be discrete with their violent actions.
 - Most of these people who are entering into the movement of extremism are lacking primary education, basic amenities and infrastructure facilities.
- **Policing:**
 - Efficient and impartial policing is an important requirement of good administration. Weaker section of people does not have much faith in police.
 - People have no faith that justice will be done to them against the powerful person in the society. Here lies one of the attractions of the Naxalite movement and extremist thoughts.
- **Process of getting Justice:**
 - Frustrations have built among the society where disputes and conflicts are not settled in time. Today's judicial system is time consuming in nature. The parties to the dispute lose control over even the terms and details of the dispute once it goes to the court. This way the people minds are turning towards extremist thoughts.
- **Developmental issues related to rise and spread of extremism:** Developmental issues which pertain to the spread of extremism are linked to **lack of access to basic resources to sustain livelihood**.
 - **Forest policy:**
 - In the name of development, habitat of principal adivasi communities were declared reserve forests & in accordance with Forest conservation Act 1980, no forest land can be diverted to non forest use without permission
 - Rights of primitive forest dwellers were restricted resulting in losing access to land.
 - Mass resentment leading to extremist activities.
 - **Displacement & rehabilitation:**
 - Displacement/ forced eviction of people occur due to developmental projects such as irrigation, industrial projects, mining projects, power plants etc. It can be physical, emotional or cultural.
 - Tribal people are most prone to displacement because tribal areas are rich in mineral resources such as Orissa, Jharkhand. This impacts multidimensional trauma on them leading to serious consequences.



- **Labour, unemployment and wages:**

- Unemployment and insecurity of livelihood are growing source of dissatisfaction and anger among youth, both in urban and rural areas.
- Minimum wages for agriculture work are not implemented, increased share of unorganized workers in unorganized sector, no effective coverage of labour welfare laws.
- Hence this multifaceted form of exploitation in the absence of any developmental propaganda forms the major cause of spread of extremism.

Thus, the above causes show that underdevelopment and socio-economic lacunae lead to extremism.

- **Effective implementation of legislation:**

- PESA, MNREGA, Scheduled tribes and other traditional forest dwellers acts must be implemented effectively.

- **Land Related Measures:**

- A serious effort must be made to continuously implement the land ceiling issues for distribution amongst the most vulnerable section of the landless poor.
- Land should be acquired by government for SEZ by paying proper compensation to the farmers.
- Land tribunals or fast track courts must be set up for speedy disposal of land ceiling cases. The loopholes in the respective state ceiling laws must be corrected.

- **Basic amenities and Infrastructure:**

- Failure to provide infrastructure and services as per national norms is one of the much discriminatory manifestations of governance in extremism affected areas. Basic services to standards among the people in these areas to be given top priority.

- **Governance Issues:**

- Areas in central India where unrest is prevailing covers several states like Andhra Pradesh, Orissa, Chattisgarh, Madhya Pradesh, Jharkhand and parts of Maharashtra are manually administered.
- State interventions both for development and for law and order are fairly low. Local populations present in the tribal areas are being exploited by the armed and rich people. Government should taken necessary action in protecting these people.
- The basic steps required in the direction include establishment of credibility and confidence of government, keeping a continuous vigil for fulfilment of people's vision, effective protection, peace and good governance sustainable development with equity in tribal areas will make extremism low in tribal areas.

- **Livelihood Security:**

- should strengthen the subsidiary and supportive activities in horticulture, poultry, fisheries, animal husbandry under the strict guidelines of ministry of agriculture through establishment of quality infrastructure & efficient market linkages at the village level.
- Universalize basic social services to standards amongst the people of extremist affected areas so that the discriminatory manifestations of governance can be removed.

- **Institutional arrangements for centre-state cooperation:**

- Since problems in formulating a counter-Extremist policy as well as in dealing with the issue on a day-to-day basis are sourced to the lack of centre-state cooperation, a permanent institutional mechanism in the form of a coordination centre can be established to thrash out emerging differences.
- A coordination centre does currently exist within the MHA, but requires the active participation of state representatives to ensure smoother coordination

Conclusion:

- Inequalities between classes have increased over the years which act as source of unrest. **Indian Constitution in article 39** mandates states to prevent concentration of wealth in few hands but policy makers often ignore this resulting into two dimensions: BHARAT and INDIA.
- Only when adivasis and marginalized groups are taken care of both these worlds won't merge. Structural violence causes much of violence. While not condoning radical violence, an honest response to extremism therefore must begin by ameliorating the structural violence in the society.

Way forward:

- Strengthening of local self govt with additional financial and decision making power would promote development by making them stakeholders in development.
- A majority of adivasis are uneducated, education can help them to demand their rights and fight for them.



- Apart from this, discrimination related to residence, food, clothing, marriage and employment must be removed.
- Roping in more NGOs and other groups that work with these tribals to help them get more skills and opening new vistas of employment based on their skills can help nip alienating feeling among them.
- Land reforms in letter and spirit granting right of land to the tiller can root out long standing dissatisfaction among the tribals.

Q) The main support for the Naxalite movement comes from Dalits and Adivasis. Discuss the correspondence and linkages of the social conditions of these communities of the population and Naxalism of a particular region. (250 words)

Reference

Why this question:

The question aims to establish the interlinkages between the communities of Dalits and Adivasis with Naxal movements of the country.

Key demand of the question:

The answer must discuss and establish the relation between the presence of such communities and the Naxal establishments of a region.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Begin with brief introduction on Naxal reach and expanse in the country.

Body:

Discussion should include the following:

Discuss the double tragedy at work in tribal India; The first tragedy is that the state has treated its Adivasi citizens with contempt and condescension. The second tragedy is that their presumed protectors, the Naxalites, offer no long-term solution either.

Explain the plight of thousands of tribals and Dalits in India.

Discuss that plethora of constitutional provisions are in place to protect the Scheduled Castes and Scheduled Tribes, and yet, in practice no SC/ST law comes to their rescue or penalizes the culprits.

Conclusion:

Conclude with way forward and suggest what needs to be done.

Introduction:

- Dalits and adivasis comprise about one-fourth of India's population: Dalits constitute 16 per cent and Adivasis 8 per cent. Most of them (80 percent of Dalits and 92 percent of Adivasis) live in rural areas. High levels of rural poverty therefore, are likely to indicate high distress among SCs and STs.
- Bihar, Orissa, Madhya Pradesh, Uttar Pradesh and West Bengal are the States with highest rural poverty, and they also account for a high proportion of SC and ST poor.

Body:

Socio-Economic Conditions:

1. Dalits:

They continue to face wide-ranging economic, social disadvantages, and day to day humiliation and degradation, denial of justice and violent atrocities in India.

- **High poverty:** In 2004/05, the proportion of SCs below the poverty line was as high 8 per cent in rural and 40% in urban areas.
- **Low education:** Dalits had been excluded from the education system for centuries. In the post-independence period educational opportunities have slowly opened up for them, but education levels continue to be very low among Dalits and the gap between Dalits and non-Dalits remains very
- **Limited employment opportunities:** most Dalits live in rural areas. The incidence of landlessness is higher among the SCs than among the The persistently high poverty of SC households is closely associated with low levels of ownership of capital assets like land, low levels of education and considerably lower diversification of avenues of employment.



- **Political marginalisation:** dalits have often had to struggle in order to assert this right and struggle again to demand accountability from the elected. The reins of power have remained with the dominant sections of society, whether it be the upper castes or in recent years the middle castes.
- **Social discrimination:** Dalits continue to face many kinds of social discrimination, related for instance to residence, food, clothing, marriage and employment.

2. Tribals:

- Apart from poverty and deprivation in general, the causes of the tribal movements are many: the most important among them are absence of self governance, forest policy, excise policy, land related issues, multifaceted forms of exploitation, cultural humiliation and political marginalisation.
- Land alienation, forced evictions from land, and displacement also added to unrest. Failure to implement protective regulations in Scheduled Areas, absence of credit mechanism leading to dependence on money lenders and consequent loss of land and often even violence by the State functionaries added to the problem.

Thus, the above causes show that underdevelopment and socio-economic lacunae lead to extremism.

- **Effective implementation of legislation:**
 - PESA, MNREGA, Scheduled tribes and other traditional forest dwellers acts must be implemented effectively.
- **Land Related Measures:**
 - A serious effort must be made to continuously implement the land ceiling issues for distribution amongst the most vulnerable section of the landless poor.
 - Land should be acquired by government for SEZ by paying proper compensation to the farmers.
 - Land tribunals or fast track courts must be set up for speedy disposal of land ceiling cases. The loopholes in the respective state ceiling laws must be corrected.
- **Basic amenities and Infrastructure:**
 - Failure to provide infrastructure and services as per national norms is one of the much discriminatory manifestations of governance in extremism affected areas. Basic services to standards among the people in these areas to be given top priority.
- **Governance Issues:**
 - Areas in central India where unrest is prevailing covers several states like Andhra Pradesh, Orissa, Chhattisgarh, Madhya Pradesh, Jharkhand and parts of Maharashtra are manually administered.
 - State interventions both for development and for law and order are fairly low. Local populations present in the tribal areas are being exploited by the armed and rich people. Government should taken necessary action in protecting these people.
 - The basic steps required in the direction include establishment of credibility and confidence of government, keeping a continuous vigil for fulfilment of people's vision, effective protection, peace and good governance sustainable development with equity in tribal areas will make extremism low in tribal areas.
- **Livelihood Security:**
 - should strengthen the subsidiary and supportive activities in horticulture, poultry, fisheries, animal husbandry under the strict guidelines of ministry of agriculture through establishment of quality infrastructure & efficient market linkages at the village level.
 - Universalize basic social services to standards amongst the people of extremist affected areas so that the discriminatory manifestations of governance can be removed.
- **Institutional arrangements for centre-state cooperation:**
 - Since problems in formulating a counter-Extremist policy as well as in dealing with the issue on a day-to-day basis are sourced to the lack of centre-state cooperation, a permanent institutional mechanism in the form of a coordination centre can be established to thrash out emerging differences.
 - A coordination centre does currently exist within the MHA, but requires the active participation of state representatives to ensure smoother coordination

Conclusion:

- Inequalities between classes have increased over the years which act as source of unrest. **Indian Constitution in article 39** mandates states to prevent concentration of wealth in few hands but policy makers often ignore this resulting into two dimensions: BHARAT and INDIA.



- Only when Adivasis and marginalized groups are taken care of both these worlds won't merge. Structural violence causes much of violence. While not condoning radical violence, an honest response to extremism therefore must begin by ameliorating the structural violence in the society.

Q) North-East suffers from violent movements based upon ethnic identities leading to clashes. Discuss the role played by Non-state actors in leading to the current conditions of the region. (250 words)

Reference

Why this question:

The question aims to analyse the insurgency situations often witnessed by the North east region owing to the role played by non-state actors.

Key demand of the question:

The answer must discuss the insurgency in north east prevalent due to non-state actors.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Begin with brief upon the situation in north east states.

Body:

Discussion should include the following:

Explain the existing situation, trace the historical factors responsible for the uprising of insurgency, rise of non-state actors, role played by them.

Then explain what should be the role of the government in overcoming the challenges, discuss policies and schemes in place to address the situation.

Conclusion:

Conclude with way forward.

Introduction:

- Due to its distinct socio-cultural background and particular historical evolution, the North-East region of India holds several fault lines around which many non-state actors have been thriving for a very long time.

Body:

The **role played by Non-state actors** in leading to the current conditions of the region:

- This region has been one of the **most neglected regions in terms of developments** and is the main cause behind the resentment of the people living in this area. The insurgent groups take advantage of resentment of people and get support base.
- **Alienation of population from mainstream political process**, where the insurgent group continue to boycott the dialogue and electoral process. E.g.: NSCN-Khaplang group.
- Active and covert foreign support to these insurgent groups, through training, logistic and moral support has also been a big hurdle to eradicate these groups. China is alleged to support such acts for instance . ULFA members of Assam were given shelter by China.
- **Non state actor -sponsored terrorism**, often motivated by fundamentalist ideologies, backed by secretive but efficient financial networks, use of IT, clandestine access to chemical-biological and nuclear materials, and illicit drug trafficking, has emerged as a major threat to international stability.
- They **bring fake currency** to India and try to hit Indian economy. E.g.: India Bangladesh border
- They **smuggle weapons, drugs into India**, directly targeting the youth
- Extremist non state actors also include religious fanatics which propagate religious hatred which can led to **communal tensions** in the country.
- They also incite people for regionalism thus demanding their separate state which further **increases secessionist tendencies**.

Measures needed:

- Thorough background check of all insurgents groups should be carried out before the central government enters into any Ceasefire or Suspension of Operations Agreements with the insurgents.
- Political solutions to the Assam problem should be discussed openly as widely as possible to avoid backlash from the tribal and the minority population of the state.



- Focus of the Ministry of DoNER and NEC should be on investment in mega-projects which will make big difference to the development of the region.
- Institutional capacities in the North east should be developed urgently.
- Pragmatic land use policy should be formulated for attracting industries in the region. Micro, small and medium enterprises should be encouraged.
- Greater awareness about the Look East Policy and its benefits to the North East should be generated among the policymakers and the intelligentsia of the region.
- Ties with Myanmar should be deepened by exploiting Myanmar's anxieties about China as well as existing deep civilization and spiritual ties.
- The North East region must be included in the India-ASEAN Vision for trade and cooperation. Development Plan for the North East should factor India-ASEAN strategic cooperation.
- Special economic zones along India-Bangladesh border, especially in Meghalaya and Assam should be set up.

Q) In what way external state and non-state actors create problems to India's internal security ? Discuss. (250 words)

Ethics by Lexicon publications

Why this question:

The question is direct from the static portions of GS paper III.

Key demand of the question:

Explain in detail the role of way external state and non-state actors and in what way they pose threat to the internal security of the country.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief define who are external state and non- state actors.

Body:

Explain that India has been facing challenges on the front of internal security since independence from various state and non-state actors. Politico-social and economic sphere of sovereign state has been controlled by the popular elected government. But peace and security can be disturbed by some external and non-state actor, through various means and ways.

Discuss who are state and non-state actors, what are the various challenges posed by them for the Indian internal security.

Conclusion:

Conclude by stating what needs to be done to overcome the challenges.

Introduction:

- India has been facing challenges on the front of internal security since independence from various state and non state actors. **External State actors** refer to those entities which have formal backing of a sovereign state for carrying out any intended action.
- **Non state actors** on the other hand, have a considerable power of influencing international events but they do not have formal state backing. Examples of state actors are the army, bureaucracy, intelligence agencies etc. whereas non state actors would be NGOs, civil society organizations, extremist outfits, multinational companies etc.

Body:

External State actors are responsible for posing a challenge to internal security in multiple ways:

- Countries surrounding India have been active in exploiting the volatile situation presented by the turmoil in the northeast. Not only countries such as China, Pakistan, Bangladesh and Myanmar, but also smaller powers such as Bhutan and Nepal have been involved in the region.
- Through **political backing, economic assistance, logistic support, military training or arms** supplies these countries have varyingly contributed to the ongoing violence in this region.
- The state may carry out a **limited war against Indian state** and this might have ramifications for our internal security too



- They might **support the various insurgent groups, Naxalites, or separatist groups** through funding, training or logistics
- There have been instances where state actors have been responsible for carrying out **cyber warfare** through **hacking and other espionage**.

Non state actors however have played their nefarious role too in creating problems for India:

- **Insurgency:**
 - North-East suffers from violent movements based upon ethnic identities leading to clashes. China is alleged to support such acts for instance. ULFA members of Assam were given shelter by China.
- **Terrorism:**
 - Pakistan has been a major exporter of terrorism to India. Non-state actors like terrorist groups for instance Lashkar-e-Taiba, Jaish-e-Mohammad are a continuous threat.
 - **Non state actor -sponsored terrorism**, often motivated by fundamentalist ideologies, backed by secretive but efficient financial networks, use of IT, clandestine access to chemical-biological and nuclear materials, and illicit drug trafficking, has emerged as a major threat to international stability.
 - These groups aim to not only create instability in states like J&K, they also have a larger aim of destabilising the country. This is done through sporadic terrorist strikes, which spreads terror and panic. This could also adversely affect the ability of the Indian state to pursue economic modernisation.
- **Naxalism:**
 - Left wing extremism affects states like Chhattisgarh, Jharkhand and West Bengal.
- **Drug trafficking:**
 - Inter and Intra state trafficking takes place, through golden crescent and golden triangle routes.
 - Drugs from **Golden Crescent** (Pakistan, Afghanistan and Iran) have affected Punjab and **Golden Triangle** (Laos, Myanmar and Thailand) has affected North Eastern states.
- **Human-trafficking:**
 - Children and women trafficking takes place via Bangladesh and Nepal.
- **Counterfeit currency:**
 - It corrodes economy from inside, by facilitating black money and money laundering activities as well as funding terrorism, which itself creates a demand for fake currency, thereby creating a positive feedback loop. This is the issue arising especially from Pakistan.
- **Communalism:**
 - Propagandas are run and funded by enemy country and other **non-state actors (NGOs and CSOs)** to destabilize India by damaging the socio-religious fabric and ensure riots.
- **Cyber Security:**
 - Recent cyber-attacks by Legion, ATM skimming are examples. Pakistani hackers often hack government websites.
- They can also incite people for regionalism thus demanding their separate state which further increases secessionist tendency

Conclusion:

- Both state and non state factors from outside have created problems in our internal security framework. Hence while it is imperative to guard our borders and strengthen our diplomacy, on the other hand, we need to check the various non state actors who come in hidden forms. There is a need for a **national internal security doctrine** to deal with various challenges.

Topic: Various Security forces and agencies and their mandate.

Q) Discuss the mandate of National Investigation Agency (NIA), What are the impediments in its operative functioning ? How can these concerns be addressed ? Elucidate. (250 words)

[Indianexpress](https://www.indianexpress.com)

Why this question:

Lok Sabha recently passed the NIA Act Amendment Bill, which gives more powers to the National Investigation Agency and extends its jurisdiction beyond India's borders. The Bill was hotly debated, with the Opposition accusing the government of misusing the agency for political vendetta and turning India into a police state.



Key demand of the question:

Answer must discuss the key mandate of NIA, impediments in its operative functioning and in what way these impediments can be overcome.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief narrate the background of the question, why was NIA in news etc.

Body:

Discuss the following aspects in the answer:

Explain the proposed amendment to the National Investigation Agency (NIA) Act-2008 that were passed – aims to provide the probe agency with powers to investigate scheduled offences such as human trafficking; circulation of fake currency; manufacture and sale of prohibited arms; and cyber-terrorism. It also allows for the creation of special courts for adjudicating such crimes.

The bill also seeks to allow the NIA jurisdiction over scheduled offences committed outside India, subject to international treaties and the domestic laws of other countries. A special court in New Delhi will preside over such cases etc.

Then discuss what are the issues involved and how they need to be addressed.

Conclusion:

Conclude with a way forward, signifying its importance.

Introduction:

- The National Investigation Agency (NIA) was set up in 2009 under the NIA Act, 2008. It was set up in the wake of the Mumbai terror attack. At present, NIA is functioning as the Central Counter Terrorism Law Enforcement Agency in India.
- The Lok Sabha recently passed the National Investigation Agency (Amendment) Bill, 2019 which enhances the jurisdiction and powers of NIA. The amendments will allow NIA to probe cybercrimes and cases of human trafficking.

Body:

Mandate of NIA:

- It aims to be a thoroughly professional investigative agency matching the best international standards at the national level, by developing into a highly trained, partnership-oriented workforce.
- It aims to discourage the existing and potential terrorist groups/individuals.
- It aims to develop as a storehouse of terrorist related information
- The agency aims to match the best international standards in counter terrorism and other national security related investigations at the national level by developing into a highly trained, partnership oriented workforce.

Impediments in its operative functioning:

- As most of terror attacks originate outside India, NIA faces hindrance in that regard.
- Due to law and order being state subject, NIA has faced coordination issues with regards to state police.
- Quality manpower is a constant challenge, especially with regards cyber attack capabilities.
- With regards to tech, it is dependent of foreign imports.
- There are no dedicated officers; the officers are recruited from Central State police, Central armed police forces on deputation.
- Lack of coordination mechanism with other specialised agencies like RAW, IB, State police etc. E.g.: Confusion during Pathankot attacks
- Lack of experts to deal with the cybercrimes.
- Lack of financial autonomy.

Measures needed:

- Granting of financial autonomy similar to CAPF.
- Although special courts will speed up judgments but filling up the vacancies of judiciary is a challenge in present times.
- To investigate cyber-crimes, need skilled manpower and ethical hackers.
- As many experts recommend, it is time for India to have a documented national security doctrine



- The doctrine should be accompanied by a security strategy that should spell out the state response to various kinds of security challenges.

Conclusion:

- Dealing with the menace of terrorism would require a comprehensive strategy with involvement of different stakeholders, the Government, political parties, security agencies, civil society and media.
- There is a need for National Counter Terrorism Centre. A centrally co-ordinated Terrorism Watch Centre, which could also operate as a think tank with sufficient inputs from academic and private experts.

Q) What do you mean by 'white collar crimes' ? If poor and illiterate are more vulnerable to be corrupt, why do the rich and educated people become corrupt ? Suggest measures to stop corruption by the rich and educated people ? (250 words)

Ethics by Lexicon publications

Why this question:

The question is based on the theme of corruption and in what way it is beyond the lines of poor or rich.

Key demand of the question:

Explain in detail with examples how corruption need not always be driven by poverty or un-educatedness rather it is often the manifestation of lack of right values and morals in individuals.

Structure of the answer:

Introduction:

In short explain the prevalence of corruption among rich and poor.

Body:

Discuss with suitable examples how corruption is rampant even among the rich and educated. The question can be best explained with examples where it is evident that the rich and literate have indulged in corruption by compromising on values and morals.

Conclusion:

Conclude with what needs to be done.

Introduction:

- White-collar crime refers to financially motivated nonviolent crime committed by business and government professionals. Within criminology, it was first defined by sociologist Edwin Sutherland in 1939 as "a crime committed by a person of respectability and high social status in the course of his occupation".
- Typical white-collar crimes could include fraud, bribery, Ponzi schemes, insider trading, labour racketeering, embezzlement, cybercrime, copyright infringement, money laundering, identity theft, and forgery. E.g.: Nirav modi scam, Vijay Mallya scam, Harshad Mehta scam etc.

Body:

Rich people become corrupt due to:

- **Greed:** The people who usually commit these crimes are financially secure.
- **Materialism:** Driven by motive of material pleasures, they are willing to take any crooked means.
- **Lack of Respect:** Disregard and ignorance for laws as they think they are above laws.
- **Power:** Legislators and the law implementers belong to the same group or class to which these occupational criminals belong;
- **Financial or physical duress.**
- The emergence of **cutting edge technology**, growing businesses, and political pressures has opened up new avenues for these criminal organizations to prosper.
- This increase is due to a **booming economy and technological advancement such as the Internet and fast money transfer systems.**
- **Law enforcement is sometimes reluctant** to pursue these cases because they are so hard to track and investigate.
- It is **very difficult to detect as white collar crimes always committed in privacy** of an office or home and usually there is no eyewitness.

Measures needed:

- Strengthening the implementation of laws like **Fugitive Economic Offenders Act, Benami Transactions act, Prevention of Money laundering act etc.**



- **Special Tribunals** should be constituted with power to award sentence of imprisonment upto 5 years for white-collar crimes. Convictions should result in heavy fines rather than arrest and detention of white-collar criminals.
- **Strengthening Corporate Governance** by implementing the measures suggested by Uday Kotak panel.
- **Increasing the democratic nature of the company** by improving transparency and accountability through audits, tax measures etc.
- **Creating public awareness** against these crimes through the media of press, and other audio-visual aids and legal literacy programmes.
- **Public vigilance** seems to be corner-stone of anti-white-collar crime strategy. Unless people strongly detest such crimes, it will not be possible to contain this growing menace.

Conclusion:

- Our social system is corrupted by number of white collar crime and it is a great challenge for us to discover suitable resolution to the increasing menace of white-collar crime.
- These crimes are directly affecting the economy of the nation and the public's confidence, therefore corrective action must be taken immediately for preventing, detecting, investigating, and prosecuting economic crimes in order to minimize their outcome.
- The provisions of Indian Penal Code dealing with white-collar crimes should be amended to enhance punishment particularly fine in tune with changed socio-economic conditions.

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SECURE SYNOPSIS **MAINS 2019**

GS- 3

AUGUST 2019

Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

The tragic death of Café Coffee Day's founder V.G. Siddhartha earlier this week has a wake-up question for our Startup nation, do you think the system is treating our entrepreneurs fairly? Critically examine. (250 words)

Livemint

Why this question:

CCD is a big brand and Siddhartha's untimely demise reflects poorly on the prevailing business atmosphere, replete with "pressures" mentioned in a letter to the board of CCD and its employees.

Key demand of the question:

The answer must evaluate the atmosphere in the country that is made available to the entrepreneurs.

Directive:

Critically examine – When asked to examine, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

Discuss the importance of entrepreneurs for the economy in general.

Body:

The answer should mainly talk about the factors of ease of doing business in India. To what extent India has a conducive atmosphere for entrepreneurs.

Throw light on the case of CCD, what must have gone wrong, what are the possible corrections government can take to prevent such incidences.

Conclusion:

Conclude by suggesting way forward.

Introduction:

India recently raised to 77th position in the World Bank's Ease of Doing Business report rankings. However, the ground reality remains different with a lot of unease for doing business. CCD is a big brand and Siddhartha's untimely demise reflects poorly on the **prevailing business atmosphere, replete with "pressures"** mentioned in a letter to the board of CCD and its employees.

Body:

State of India's business atmosphere:

- Foreign investors, Indian entrepreneurs and corporations still find themselves stuck in archaic laws and regulatory red tape.
- Clarity is lacking and piecemeal amendments made to laws haven't helped.
- Major legislative reforms have taken place, led by the goods and services tax (GST) and the new insolvency law, but these, too, have struggled to make a difference due to problems in their implementation.

- Important concepts for Merger and acquisition deals remain shrouded in legalese-driven ambiguities. This pushes Indian entrepreneurs and companies back, despite India jumping 30 places last year in the World Bank's ease of doing business rankings.
- As per the World Bank, the enforcing contracts indicator measures the time and cost for resolving a commercial dispute through a local first-instance court (competent court), and the quality of judicial processes index, evaluating whether the country has adopted a series of good practices that promote quality and efficiency in the court system. India ranks very low in this.
- India's ranking in the 'enforcement of contract' component is 164. The report says that it takes an average of 1,445 days (or nearly four years) to enforce a contract in India. In this, the distance to frontier (DTF) ranking score is 40.76. The all-told cost to a litigant to recover amounts legitimately due to him is 31% of the value of the claim.
- The judiciary in India is already plagued with pendency of cases and case disposal is slow due to multiple factors like: More appeals; Low judges to cases ratio; Lack of modernisation of courts
- Plenty of grey areas exist, especially on tax matters. Guilt in many cases is a matter of legal interpretation. Such nuances tend to be lost on the public at large, all the more so after the past few years' uproar over black money and unpaid corporate loans.
- Society should change the way it treats entrepreneurs and they should not be called thieves, etc. without proof or substantiation.
- There is a broad anxiety over the vilification and worse that faltering firms and their promoters are often put to by an insensitive financial system.

Measures needed:

- Government is taking measures like Parliament even passed the Commercial Courts, Commercial Division and Commercial Appellate Division of High Courts Act.
- Labour laws should foster an enabling environment so far as employment practices are concerned.
- Faster reforms in the power sectors, facilitation of entry and exit of firms, level playing field for small and large firms, improvement in access to finance will lead to improvements in ease of doing business norms.
- To secure changes in the remaining areas will require not just new laws and online systems but deepening the ongoing investment in the capacity of states and their institutions to implement change and transform the framework of incentives and regulation facing the private sector. India's focus on 'doing business' at the state level may well be the platform that sustains the country's reform trajectory for the future.
- For attracting new investment, both foreign and domestic, several macroeconomic issues have to be addressed. These include political and economic stability, law and order maintenance, quality physical infrastructure, and buoyancy in financial markets.

- For the tax regime to be effective, India would do well to follow the due, and fair, process of law, especially when the offender is an entrepreneur. Our law enforcers and society will also have to re-examine their attitudes towards business.

Conclusion:

India is at crossroads where it now has to cater to the aspirations of a billion people. Existing frameworks can prove to be inadequate and there is a great need to leverage a billion minds and become a global power. Startups and entrepreneurship is the best way forward in becoming a knowledge superpower.

“Stagnant wages and jobless growth have become a recipe for political instability in the Indian countryside”, Critically analyse the statement in the backdrop of declining availability of jobs in the Indian economy.(250 words)

Livemint

Why this question:

The article talks about the employment picture and state of Jobs in the country.

Demand of the question:

The answer has to evaluate How serious is the employment problem in India.

What are the issues of economy with respect to jobs and employment scenario?

Directive word:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction

Discuss by quoting facts and highlight the issue.

Body

The article discusses in detail in what way stagnant wages and jobless growth are a recipe for political instability in the Indian countryside.

Take hints from the article and discuss the issues associated and what are the possible solutions/fixes to the same.

Conclusion

Conclude with way forward.

Introduction:

Unemployment has become a chronic problem of India and in the recent years the situation has only worsened. The National Sample Survey Office’s (NSSO’s) report, “**State of Working India, 2018**” data shows a record spike in unemployment in 2017-18. The overall unemployment was at a 45-year high, with youth between the ages of 15 and 29 facing higher rates of joblessness than others

Body:

State of Unemployment in India:

- CMIE database on “**Unemployment Rate in India**” is based on the panel size of over 1,58,000 households in the country.
- The unemployment rate in December 2018 rose to 7.38% from 6.62% in November 2018 and 4.78% in December 2017, highest since September 2016 when it stood at a high of 8.46%, the CMIE data showed.
- The total number of people employed fell by about 1.09 crore, about 83% or 91.4 lakh jobs were lost in rural areas.
- There has been a decline in the estimated Labour Participation Rate— the proportion of working-age people who are willing to work and are either actually working or are actively looking for work, in line with a fall in the unemployment rate.
- The estimated labour participation rate also dropped from 43.57 in December 2017 to 42.47 in December 2018. The rate was at 45.15 in December 2016 and at 47.84 in September 2017, the data showed.

The **reasons for issue of unemployment** in contemporary India:

- The labour force is the sum of the employed and those unemployed who are seeking employment.
- A shrinking of the labour force is most unusual in an economy with a growing population, and thus a growing working age cohort.
- **Low education and lack of skills** lead to loss of many job opportunities.
- **Discouraged-worker effect:** A section of those hitherto willing to work may have simply dropped out of an already challenged labour market.
- **Demonetization** has caused demoralisation among a section of the already unemployed who may have given up all hope of finding employment.
- About **90% of Indian Workforce is in the unorganized sector** which was majorly affected during Demonetization and GST introduction.
- **Declining Capital formation** which is not backed by Public and Private Investment.
- **Low female LFPR to the tunes of 24%** also adds to high unemployment rate.
- **Automation and IR4.0** is a looming threat to many jobs which have repeated work or sequential work.
- Socially disadvantaged groups do not get enough exposure in the job market like the general castes and Other Backward Classes.
- Labour laws in India are complex and relatively strict. Employment protection legislation is restrictive, compared with other emerging economies and OECD countries. Thus, corporates in

India tend to rely more on **temporary contract labour**, stay small or substitute labour for capital to avoid strict labour laws.

Impacts:

- The problem of unemployment gives rise to the problem of poverty.
- Young people after a long time of unemployment indulge in illegal and wrong activities for earning money. This also leads to increase in crime in the country.
- Unemployed persons can easily be enticed by antisocial elements. This makes them lose faith in democratic values of the country.
- It is often seen that unemployed people end up getting addicted to drugs and alcohol or attempts suicide, leading losses to the human resources of the country.
- It also affects economy of the country as the workforce that could have been gainfully employed to generate resources actually gets dependent on the remaining working population, thus escalating socioeconomic costs for the State. For instance, 1 percent increase in unemployment reduces the GDP by 2 percent

Way forward:

- There are number of labour intensive manufacturing sectors in India such as food processing, leather and footwear, wood manufacturers and furniture, textiles and apparel and garments. Special packages, individually designed for each industry are needed to create jobs.
- Public investment in sectors like health, education, police and judiciary can create many government jobs.
- Decentralisation of Industrial activities is necessary so that people of every region get employment.
- Development of the rural areas will help mitigate the migration of the rural people to the urban areas thus decreasing the pressure on the urban area jobs.
- Entrepreneurs generate employments to many in a country; therefore government needs to encourage entrepreneurship among the youth.
- Concrete measures aimed at removing the social barriers for women's entry and their continuous participation in the job market is needed.
- Government needs to keep a strict watch on the education system and should try to implement new ways to generate skilled labour force.
- Effective implementation of present programs like **Make in India, Skill India, Start up and Stand-Up India**.
- There is a need for **National Employment Policy (NEP)** that would encompass a set of multidimensional interventions covering a whole range of social and economic issues affecting

many policy spheres and not just the areas of labour and employment. The policy would be a critical tool to contribute significantly to achieve the goals of the 2030 Agenda for Sustainable Development.

Analyse in what way helping farmers produce solar energy can help realise the government's target of doubling farmers' incomes.(250 words)

Indianexpress

Why this question:

The article discusses how solar energy can help the farmers realise doubling their income.

Demand of the question:

One has to analyse and suggest in what way harnessing the solar plant potential can help farmers augment their income.

Directive word:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction

Discuss the initiatives taken on this front by the government recently.

Body

With the latest Budget mentioning how annadata (farmer) can become the urjadata (producer of solar power). Discussion should focus on explaining how alternative model can help farmers produce solar power on their lands. Take hints from the article and substantiate your opinion and establish how solar energy generation along with agriculture can prove to be a game changer for farmers in India.

Conclusion

Conclude with way forward.

Introduction:

The Union Finance Minister (FM) in her maiden budget speech reiterated the idea of farmer being a solar energy producer through solar farming. In the Parliament, the agriculture minister for state, responding to a question on the prime minister's promise of doubling farmers' income (DFI) by 2022, admitted that the existing set of policies cannot double farmers' real incomes by 2022.

Body:

Farmers as solar power producers can help achieve DFI:

- The PM has set a target of producing 100 GW of solar power by 2022.
- He wants to be one of the frontrunners in International Solar Alliance for clean energy.
- So far, the model that has been adopted to develop solar power is inviting bids from large business players and big players did enter.
- Some people who entered early into Power Purchase Agreements (PPA) with state governments had to suffer, when the costs came down.
- Then, the state governments also forced them to revise the costs of PPA downwards, upsetting their economic calculations.

- But, this model of generating solar power was not very inclusive.

Measures needed:

- **Replace all pump sets with solar pumps and the excess power generated can be purchased by the state government.**
- This gives the farmers a good margin over their cost of producing it.
- **Encourage farmers to grow “solar trees” on their lands in a manner that enough sunlight keeps coming to plants below.**
- Here, the farmers can keep growing irrigated crops as they have been doing, but the solar trees generate a lot of excess power that can be purchased by the state government.
- The power generated under this variant is multiple times more than that produced under the first variant, and, the income augmentation can also be several times more.
- **Solar -cum-agricultural farms:** Carrying out expansion of solar power capacity as well as for crop farming together is known as solar-cum-agricultural farm.
- The power produced by the photovoltaic modules installed in the fields can help meet energy needs of the farm operations besides selling the remaining power.
- The rainwater falling over the photovoltaic panels can be collected for irrigation, turning it into solar-cum-agriculture-cum-rainwater harvesting farm.

Economic Survey findings:

- Indian Council for Research on International Economic Relations’ (ICRIER) global survey found that it is being practiced in many countries like Japan, China, Germany, etc and India is ripe for this.
- The problem is mobilising enough capital to install these solar trees.
- In one acre, you can have 500 solar trees in such a manner that even tractors can move through them and farmers can keep growing their normal crops.
- It does not affect their productivity as there is ample sunlight coming from the sides for the crops to perform photosynthesis.
- The second precondition is that the state should be ready to sign the power purchase agreement.

Way forward:

- Setting up of such integrated agri-photovoltaic farms is typically a cost-intensive proposition, heavy investments may be unaffordable for most Indian farmers.
- It is advisable to encourage the solar energy entrepreneurs to consider joining hands with the farmers on mutually agreed terms, instead of going in for solo photovoltaic units.

- This will be mutually beneficial for both of them otherwise, agri-solar farms may not proliferate.

Conclusion:

The Indian government should help farmers by providing subsidies and loans to acquire solar powered agricultural tools. Agricultural experts should encourage guiding farmers in operating them. India must exploit the potential of this decentralised technology to achieve the dual national targets of 100 GW of solar and doubling farmer's income by 2022 — setting a world-class example of greening the economy and overcoming its developmental challenges, simultaneously.

"J&K is known for high emotions and low economy", in the context of the statement provide for an analysis of the development aspects in the state and also suggest way forward.(250 words)

Livemint

Why this question:

The article captures the sick picture of the state of Jammu and Kashmir in terms of development status of its economy.

Key demand of the question:

One has to examine and analyse in depth the root causes for such an infant nature of the Kashmir economy, why has the growth stagnated in the valley for decades and suggest what should be the way forward.

Directive:

***analyze** – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.*

Structure of the answer:

Introduction:

Define the current conditions in the state, the latest happenings of scrapping of article 370 etc.

Body:

Explain that J&K does not have enough private sector avenues and politics hasn't produced enough opportunities and conducive atmosphere owing to insufficient urbanization, lack of finances, formalized economy and industrialization.

Explain the factors that have led to the situation so far.

Discuss what needs to be done? What are the repercussions of the latest move taken by the government etc.

Conclusion:

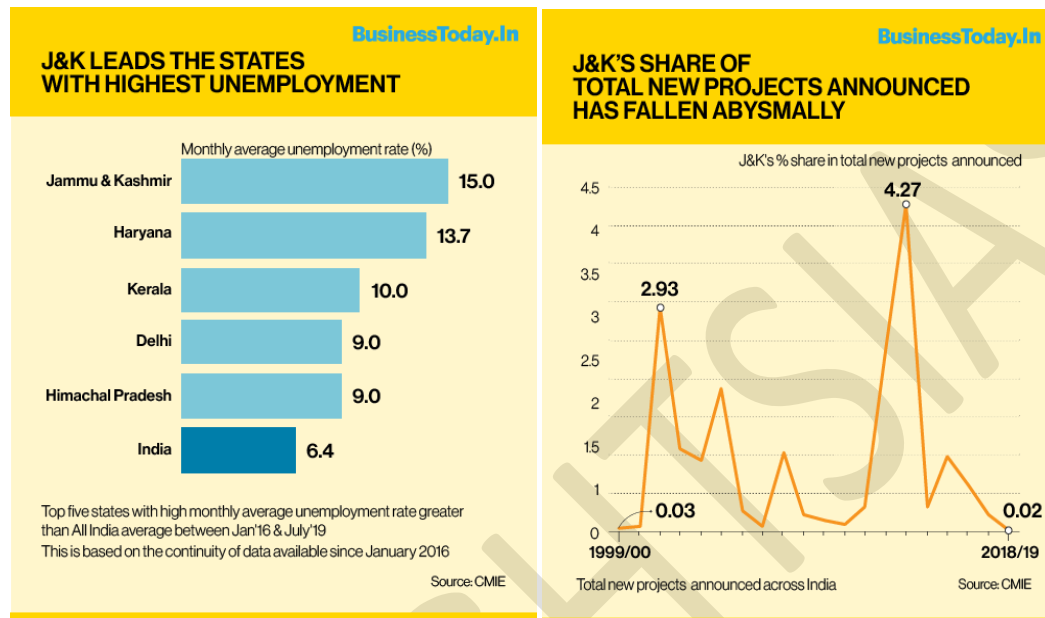
Conclude with way forward.

Introduction:

The government recently introduced a **resolution to remove provisions of Article 370**, which provides special status to Jammu and Kashmir. In addition, Home Minister also introduced a Bill bifurcating the State of Jammu of Kashmir into Union Territory of Ladakh and the Union Territory of Jammu and Kashmir. The Presidential Order has extended all provisions of the Constitution to Jammu and Kashmir, including the chapter on Fundamental Rights. Therefore, the discriminatory provisions under Article 35A are now unconstitutional.

Body:

The economy of Jammu and Kashmir has suffered from disturbed conditions prevailing in the State for almost two decades. J&K does not have enough private sector letters and politics hasn't produced enough vowels because it is insufficiently urbanized, financialized, formalized and industrialized. **Article 370 and 35A created huge regulatory and legislative cholesterol** in land markets and labour markets that created an antibiotic reaction to formal enterprises, institutional capital, and professional workers. The fragile political and security situation has further dissuaded the investors in J&K.



J&K- an economic infant:

- The huge chunk of Kashmir's workforce employed in horticulture and handicrafts gets less than 20% of the final sale price of their goods because of lack of design, distribution and capital.
- The hospitality industry does not have a robust local people supply chain, has less business model diversity, and lower employment elasticity of growth because of weak access to technology, capital, and marketing.
- The state not only has a **lower credit-to- GDP ratio than Bihar**, but its primary banking institution is almost unskilled—it knows how to give money but not how to get it back. Low formalization means no private firm with more than 500 formal employees.
- There is **only one listed company**, and **private investment last year was less than ₹1,000 crore**.
- Given how the potential for professional tourism, horticulture, handicrafts, and manufacturing could combine with how smart the people are, it is not unfair to say that the **J&K economy is a 10-horsepower engine running on one horsepower**.

Measures needed:

- More effective implementation of employment-oriented schemes and programmes.

- Tourism is another area which is a gift of nature to the state. But unless we are able to create the requisite infrastructure and other facilities of high quality of international standard for the tourists, the real benefits will not flow to people in terms of income supplementation and employment generation.
- The state has three distinct niches, while leisure tourism is available in Kashmir valley, Pilgrim in Jammu and Ladakh has the potential to after adventure tourism
- Human resource development through education and health is not only a pre-requisite for better human living but is also critical in determining the pace of economic development of a society.
- There is a need to give **fillip to the economic activities** that have traditionally been the mainstay of the State's economy and continue to hold significant potential for growth and employment.
- Such activities include **Agriculture (including Horticulture), Food Processing, Handicrafts and Handlooms, and Livestock and Poultry farming** on modern lines.
- It would be equally necessary to **ensure diversification of the State economy**, especially expanding the industrial base by generally have a traditional bent of mind. Diversification of agricultural activities is the need of the hour to keep up with the changed circumstances.
- Jammu and Kashmir has unexploited capacity to produce products which have value demand and ready for attractive markets both in India and Overseas. E.g. bio aromatics, medical herbs, organic specialty vegetables etc.
- The **potential of Horticulture** in J&K is high, given the rich diversity in its flora and fauna and varied agro-climatic situation. The state enjoys monopoly in certain fruits, vegetables and medicinal plants and there is an immense scope for increasing the production of other horticulture produce that are marketed in rich and export markets.
- Jammu and Kashmir is **rich in handicrafts**, so state Government must promote handicrafts industries by increasing shopping arcade in their existing properties and provide space for handicrafts industry to display their products.

Conclusion:

The significant move, in theory, opens up potential opportunities for development-led economic growth in the Union Territories of J&K and Ladakh. Thus, the move is bound to have a significant impact on the demography, culture, and politics of J&K. Whatever its intent in enabling the full integration of Jammu and Kashmir with India, this decision to alter the State's status could have unintended and dangerous consequences.

Discuss the recent liquidity crisis that the NBFCs are facing in the country and its impacts on various financial aspects of the economy. Throw light upon the steps taken by the government in this regard and suggest way forward to address the problems that have contributed to the crisis.(250 words)

The hindu

Why this question:

The Reserve Bank of India (RBI) has announced new measures to increase credit flow to the Non-Banking Finance Companies (NBFCs) so as to overcome the on-going liquidity crunch in the sector. Thus, it is important to examine the environment of NBFCs in the country.

Key demand of the question:

The answer must discuss in detail the liquidity crisis facing the NBFCs and the role of government in dealing with the crisis.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Define what are NBFCs.

Body:

Students must first bring out in brief the worsening credit situation of NBFCs and the causes for it, then explain the recent measures taken by the RBI to deal with the same – RBI has increased the cap on a bank's exposure to a single NBFC to 20% of its tier-I capital from 15% now.

Bank lending to registered NBFCs (other than MFIs) for on-lending to Agriculture up to ₹10.0 lakhs; Micro and Small Enterprises up to ₹ 20.0 lakh and housing up to ₹ 20.0 lakh per borrower to be classified as priority sector lending.

Also explain the measures taken in the last year and its effect on NBFCs.

Conclusion:

Conclude with way forward.

Introduction:

A Non-Banking Financial Company (NBFC) is a company registered under the **Companies Act, 1956** engaged in the business of loans and advances, acquisition of shares/ stocks/ bonds/ debentures/ securities issued by Government or local authority or other marketable securities of a like nature, leasing, hire-purchase, insurance business, chit business. However, it does not include any institution whose principal business is that of agriculture activity, industrial activity, purchase or sale of any goods (other than securities) or providing any services and sale/purchase/construction of immovable property.

Body:

How the NBFC crisis has panned out

Aug 2018: IL&FS crisis becomes public. With a debt of ₹91,000 crore, it defaults several times in Sep.

Sep: Crisis leads to sell-off in shares of several NBFCs. This leads to redemption pressure on many MF schemes.

Jan 2019: Essel Group's debt troubles become public. MFs and NBFCs enter into a "standstill agreement" with the promoter family to not sell the pledged shares of Zee Entertainment Enterprises.

Feb: Reliance group and its lenders and MFs enters into an Essel-like pact.

Apr: CARE Ratings downgrades debt programme of Reliance Capital and two of its arms, Reliance Commercial Finance and Reliance Home Finance.

May: Icra downgrades ratings on long-term bonds of Yes Bank with a negative outlook.

NBFC crisis:

- NBFC is passing through a turbulent period following a **series of defaults by Infrastructure Leasing and Financial Services (IL&FS)** and the **subsequent liquidity crunch**.
- Several corporates, mutual funds and insurance companies had invested in short-term instruments such as commercial papers (CPs) and non-convertible debentures (NCDs) of the IL&FS group that has been defaulting on payments since August.
- This has stoked fears that many of them could have funds stuck in IL&FS debt instruments which, in turn could lead to a liquidity crunch in their own backyard.
- There are rising fears that the funding cost for NBFCs will zoom and result in a sharp decline in their margins.
- Higher borrowing costs and narrowing options to raise funds will pose challenges for retail non banking finance companies (NBFCs) in the fiscal year ending March 2019.
- The bond yields have gone up sharply to around the 8% mark. That is making borrowing costlier even at the short end of the yield curve.
- NBFCs are likely to witness higher pricing pressure as competition in the retail segment intensifies going forward this is expected to be accentuated by narrowing funding avenues and higher systemic rates.
- Higher fuel prices, weaker dollar and the trade war could hit the SME sector badly. This would mean defaults by SMES, which have been a traditional market for NBFC lending.
- Investors are worried about a credit downgrade backlash on NBFCs. That could mean huge write-offs for investors.
- Mutual funds who have invested in market instruments of NBFCs have faced increased redemption pressures.
- A kind of contagion then spread to other financial stocks, and the benchmark indices crashed, creating wider impacts.

- Following the credit crunch after IL&FS crisis, RBI provided special incentives to banks to enable the flow of funds to NBFCs.

Government steps to fight NBFC liquidity crisis:

- The RBI has decided to increase the cap on a bank's **exposure to a single NBFC to 20% of its tier-I capital from 15% now.**
- RBI has decided to give '**priority sector**' tag for banks lending to NBFCs, for on-lending to farm, small and medium enterprises and housing sector.
- The RBI has asked the non-banking financial companies (NBFCs) with assets of more than ₹5,000 crore to appoint a **chief risk officer (CRO).**
- The Reserve Bank of India (RBI) has extended the coverage of **Ombudsman Scheme for Non-Banking Financial Companies (NBFCs), 2018** to eligible Non Deposit Taking Non Banking Financial Companies (NBFC-NDs).
- The Reserve Bank of India (RBI) has decided to merge three categories of Non Banking Financial Companies (NBFCs) into a single category to provide greater operational flexibility to non-banking lenders. NBFCs categorized as Asset Finance Companies (AFC), Loan Companies (LCs) and Investment Companies (ICs), will be merged into a new category called NBFC – Investment and Credit Company (NBFC-ICC).
- The Reserve Bank of India has permitted banks to grant partial credit enhancement (PCE) to bonds issued by NBFCs and housing finance companies recently.

Way forward:

- Given the growing size and dominance of the NBFC sector, it is important that the threshold capital levels for entry be substantially increased. It may be prudent for RBI to evaluate the need to shore up minimum capital requirements for various NBFCs.
- While RBI has identified systemically important NBFCs, it needs to step up the monitoring of NBFCs which belong to large, diversified groups. Checks and balances are needed to ensure that risks do not build up in the sector due to structures which are too-complex-to-manage.
- RBI could consider re-visiting some of the unimplemented recommendations of the Working Group on Issues and Concerns in the NBFC Sector chaired by Usha Thorat in 2011.
- One such recommendation was the introduction of a liquidity coverage ratio for NBFCs. The objective was to ensure that NBFCs have cash balances and holdings of government securities which may fully cover gaps between cumulative outflows and cumulative inflows for the first 30 days. This would be the buffer in times of stress.

Rural tourism not only contributes to tourism industry but also creates local economic growth and overall sustainable development. Discuss.(250 words)

Chapter 2. Rural Tourism in India, Kurukshetra: April 2019 Issue

Why this question:

The question is based on the theme of rural tourism.

Key demand of the question:

The answer must capture the concept of rural tourism in India and in what way it brings sustainable development along with rural local economic growth.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief define rural tourism.

Body:

Rural development is a necessity for India and any strategy/ policy in this direction is a welcome step. There is a lot of scope of rural tourism, given the vast rural hinterland of India and growing connectivity between urban and rural centers.

Explain opportunities in rural tourism and also discuss what benefits it could provide. E.g Desire for escape from the monoculture of city living. Increasing Interest in Outdoor Recreation, Eco-Tourism and Special Interest Tourism. Rural locations are ideal for relaxation and rejuvenation. Over-familiarity and Congestion with traditional tourist resorts Increased Interest in alternative and off-beat attractions Curiosity for rural India and its culture, customs and heritages Accessibility of Rural Areas. Growing number of special interest tourists etc.

Conclusion:

Conclude with way ahead and reassert that rural tourism holds huge potential in transforming rural society of India in terms of growth and development.

Introduction:

Rural tourism is, “experience oriented, the locations are sparsely populated, it is experience oriented, the locations are sparsely populated, it is pre-dominantly in natural environment, it meshes with and local events and is based on preservation of culture, heritage and tradition.”

Body:

Rural tourism contributing to rural development:

- **Reduces migration:**
 - Rural Tourism facilitates the declining areas to be developed with basic infrastructure facilities and provides the host community alternative ways of employment and side by side it reduces out-migration.
 - It fosters a closer relationship between city dwellers and rural communities.
- **Alternative Way of Earning:**
 - Most of the rural dwellers in India are dependent on traditional agricultural activities to maintain their livelihood.

- In this connection, rural tourism can be a potential tool to reduce their over-dependency on cultivation and it contributes to the overall economic development of an area that would otherwise be deprived.
- **Employment:**
 - Rural tourism creates a large number of semi-skilled jobs for the local population in not only local hotels and catering trades but also in other fields like transport, retailing, heritage interpretation etc.
 - Moreover, it ensures revival of traditional arts, crafts, building art etc. and brings marketing opportunity for rural producers to sell their products directly to the tourists.
 - Rural performers are hired for cultural programs where they can exhibit talent and also can earn money.
 - It allows alternative sources of earning opportunities from non-agricultural sectors that improve living standards of the rural dwellers to some extent.
- **Job Retention:**
 - Cash flows generating from rural tourism can assist job retention in services such as retailing, transport, hospitality, medical care etc. It provides additional income for farmers, local fishermen and local suppliers
- **Alternative Business Opportunities:**
 - Rural Tourism generates new business opportunities even those rural businesses, not directly related to tourism can also gain benefit from tourist activity through developing close relationships with tourist facilities.
 - For example, a number of tourists love to taste local cuisines of different tourist spots. Therefore any restaurant serving ethnic foods can also attract tourists though many of these restaurants are not directly related to tourism business.
- **Poverty Alleviation:**
 - Rural Tourism is being admired all over the world because such form of tourism can shape up rural society both by economic and social terms.
 - It brings both monetary and social benefits to the rural people.
 - It alleviates poverty by creating alternative sources of earning.
- **Empowerment of Localities:**
 - Rural Tourism cannot be flourished without the involvement of local people in it.
 - Accommodation facilities are being provided by local hotel owners whereas local suppliers supply food and beverages to the local hotels.

- Local producers produce locally made products as per tourists demand and earn money by selling them in the local market.
- To entertain tourists, local organizers conduct different cultural programmes where local performers exhibit their art and culture through live performance.
- Not only that, rural people also become engaged in different decision-making processes. All such engagement actually empowers the localites.
- **Entrepreneurial scope:**
 - Rural Tourism has increased career options for these young entrepreneurs.
- **Arts and Crafts Sale:**
 - Arts and crafts are the evidence of local culture and heritages of a community belonging from any region or any nation. The urban tourists, wherever they go, generally prefer to have a collection of local arts and crafts to make their trip-experience a remembering one.
 - Such tendency motivates them to purchase local arts and crafts from the local producers and artists.
 - Side by side it encourages the local community to sell their products in local market. Such practice opens an alternative way of earning to the rural people.
- **Environmental Improvement:**
 - Environmental improvements such as village paving and traffic regulation schemes, sewage and litter disposal can be assisted by tourism revenues and political pressures from tourism authorities.
 - These help develop pride of place, important in retaining existing population and businesses, and in attracting new enterprises and families.
- **Heritage Preservation:**
 - Rural Tourism brings a strong sense of emotion in everyone's (both community and tourists) mind to preserve and reserve the local culture and heritages to make any place attractive for the tourists to visit it and also for the host community to live in.
 - Such sense is maintained through rural museums that play a significant role in local heritage preservation.

Way forward:

- **Resources mapping** brings to the fore what rural India has to offer to tourists.
- Traditionally Indian society is known for its hospitality; however some **basic training on soft skills** to engage the tourists will certainly be helpful.

- The **education and awareness at community level** will be very crucial for developing sustainable tourism practices in villages.
- **Panchayats, NGOs and community organisations** have an important role to play here by way of engaging both communities and tourists to promote responsible tourism.
- There is a need to develop the **Accessibility, Accommodation, Attractions and Amenities (4A's)**.
- Encouraging local entrepreneurs, private enterprises, investors and other tourism stakeholders to come under a common umbrella for basic rural infrastructure development activities is also essential.
- Better implementation of the Government schemes viz. **Swadesh Darshan, PRASAD, Special Tourism Zones and Promotion of e-Tourist Visa facilities**.
- Promotion of **non-intrusive rural tourism with preservation of traditional cultures** should be done.

"Ease of living should be the ultimate aim of the country, while ease of doing business is merely one of the pathways to achieve it." Elucidate.(250 words)

Prime minister's speech for 73rd Independence Day from the Red fort.

The hindu

Why this question:

The phrase has been picked up from Prime minister's speech for 73rd Independence Day from the Red fort, it aims to throw light upon ease of living in the country and dire need of the same.

Key demand of the question:

Discuss the concept of ease of living, significance of ease of doing business.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Define what is ease of living and ease of doing business.

Body:

Prime Minister Narendra Modi has reiterated that the priority of Central Government is to ensure Ease of Doing Business and Ease of Living, the Digital India Campaign has ensured Ease of Living for common people.

Discuss the various aspects of policies of the govt. that is ensuring ease of living.

Conclusion:

Conclude with way forward.

Introduction:

The individual's ease of living is **the level of wealth, comfort, material goods and necessities available to them in a certain geographic area**. It includes **factors like income, quality and availability of employment, class disparity, poverty rate, quality and affordability of housing, education, growth, environmental quality**. The ease of living is closely related to the **quality of life**.

Body:

Need to target ease of living:

- In the recently released **Global Hunger Index (GHI)**, India featured at the 100th position among 119 countries, lagging behind even North Korea and Iraq.
- **About 40 per cent of city's population** is compelled to live in slums, and municipal authorities have failed consistently to come up with affordable housing schemes for people with low income.
- A census report states that 64 million people live in India's slums. The problem becomes more severe with urban India, where 17 per cent people live in slums. Over 70 per cent of slum households get their water from a tap, but just half of them get water in their homes.
- With burgeoning urban population, existing urban infrastructure, both institutional and physical, is being tested.
- From demands of reservations for locals in educational institutes and hospitals, to permanent damage to eco-systems, drainage networks and water-tables, side effects of poorly thought out and badly regulated urbanisation are beginning to show

How ease of doing business leads to ease of living:

- The reforms undertaken to ease of doing business helps in **removing excess influence of the governments from people's lives**.
- The people would have the freedom of **pursuing their aspirations**.
- It **reduces the policy paralysis** and strengthens the confidence of business environment.
- With better policies in lieu of attracting business, it helps in **more job creations** reducing the unemployment rate and in turn **increases the per capita income**.
- With ease of doing business, many **job seekers would turn into job-givers**, thereby spurring the economy by investment.
- The **infrastructure- physical and socio-economic** will be rejuvenated to **ensure faster connectivity** which enhances business and in turn the lives of people in rural areas.
- The ease of doing business would **help attract foreign investments** into India, providing the necessary capital to start new ventures.
- It could help **foray into new avenues** from food processing to fibre optics thereby diversifying the business chains horizontally.
- With introduction of the state of the art science and technology features, it can lead to spin-off effects helping the socio-economic development of society.

Way forward:

- Efficiency, Productivity, quality, speedy implementation and execution of upgraded scheme with help achieve the targets.

- Economic growth and job creation addresses Ease of Living to an extent.
- Role of society in it is imperative.
- Need to adopt holistic approach like industries can be created with manpower intensive since growth does not always translate into jobs.
- Decentralised and universal coverage of health and education to the lowest rung of the society should be ensured.

Conclusion:

It is more important of looking at people at large. People at ground level should feel happiness, change, providing them opportunity to lead life with dignity. If people's life is comfortable and if they are happy automatically the productivity increases because "Happy society is a flourishing society".

What are Differential Voting Rights? Discuss the role played by them in the growth and expansion of start-up ecosystem in India.(250 words)

Reference

Why this question:

The article talks about the concept of DVRs and applicability to start-ups.

Key demand of the question:

The answer must discuss the significance of DVRs and their role in promoting start-ups.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Describe what are DVRs.

Body:

Discuss the concept of DVR – A DVR share is like an ordinary equity share, but it provides fewer voting rights to the shareholder.

Why do companies issue DVR? – Companies issue DVR shares for prevention of a hostile takeover and dilution of voting rights. It also helps strategic investors who do not want control, but are looking at a reasonably big investment in a company.

At times, companies issue DVR shares to fund new large projects, due to fewer voting rights, even a big issue does not trigger an open offer.

Explain in what way they can contribute to start -ups.

Conclusion:

Conclude with way forward.

Introduction:

Differential Voting Rights (DVRs), which do not follow the common rule of one share-one vote, enable promoters to retain control over the company even after many new investors come in, by allowing shares with superior voting rights or lower or fractional voting rights to public investors. The Ministry of Corporate Affairs has amended the provisions relating to Differential Voting Rights (DVRs) under the Companies Act.

Body:

In the past, companies such as Tata Motors, Pantaloon Retails and Jain Irrigation issued DVRs having fractional voting rights of 1/10th of the ordinary shares to public investors. These shares offer higher dividend compared to the ordinary shares in lieu of the voting rights taken away.

But the issuance of DVRs with superior voting rights was prohibited by the SEBI. This was to prevent the possible misuse of power by the promoters detrimental to the interests of small shareholders.

Role played by DVRs in expansion of start-up:

- The ministry of corporate affairs (MCA) has raised the existing cap of 26 per cent of the total post issue paid up equity share capital to 74 per cent of total voting power in respect of shares with DVRs of a company.
- To make capital available to Indian start-ups and to encourage listing on the country's exchanges, SEBI recently permitted Initial Public Offering (IPO) of unlisted companies with shares of superior rights.
- Start-ups and technology companies will be able to issue shares with differential voting rights (DVRs) with the government amending the Companies Act provisions to help entrepreneurs retain control even as they raise equity capital from global investors.
- This will surely help promoters, especially start-ups, in raising capital without diluting their control over the company
- It strengthens the hands of Indian companies and their promoters who have lately been identified by deep pocketed investors worldwide for acquisition of controlling stake in them to gain access to the cutting edge innovation and technology development being undertaken by them

Conclusion:

This move is aimed at enabling promoters of Indian companies to retain control of their companies in their pursuit for growth and creation of long-term value for shareholders, even as they raise equity capital from global investors.

Despite the Microcredit system that has a great scope in alleviating socio-economic problems, existing systems requires restructuring in several areas to allow for long lasting benefits. Comment.(250 words)

[Indianexpress](#)

Why this question:

The article explains the current conditions of Microcredit and its scope to alleviate socio-economic problems and in what way these conditions alone can not fix all the economic problems.

Key demand of the question:

The answer must evaluate the impact of micro credit systems and the need for restructuring existing systems for better economic conditions in the country.

Directive:

***Comment**— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.*

Structure of the answer:

Introduction:

Begin with what you understand by microcredit systems – Microcredit refers to the granting of very small loans to impoverished borrowers, with the aim of enabling the borrowers to use that capital to become self-employed and strengthen their businesses. Loans given as microcredit are often given to people who may lack collateral, credit history, or a steady source of income.

Body:

Discussion should include the following:

Explain first in what way microcredit has gained much traction as a tool for ensuring the welfare of the most impoverished in the society but there are certain flaws in the model.

Discuss what is the core idea of microcredit, how has it helped improve the socio-economic conditions of the poor in the country.

Explain what more restructuring is envisaged or required to better the conditions of economy apart from microcredits.

Conclusion:

Conclude with way forward.

Introduction:

Microcredit refers to the **granting of very small loans to impoverished borrowers, with the aim of enabling the borrowers to use that capital to become self-employed and strengthen their businesses.** Loans given as microcredit are often **given to people who may lack collateral, credit history, or a steady source of income.** It has gained much traction as a **tool for ensuring the welfare of the most impoverished in the society** but there are certain flaws in the model.

Body:

Potential of Microcredit:

- The core idea of microcredit is that a small loan will provide access to the larger economy to people who typically live outside the scope of the institutions on which the mainstream economy rests.
- Such a loan is meant to enable them to commence with productive activities, and will give them the initial boost required to gain entry into an industry, after which production will be able to sustain itself, and the loan will gradually be repaid.
- Microcredit agreements frequently do not require any sort of collateral, and sometimes may not even involve a written agreement, as many recipients of microcredit are often illiterate.
- When borrowers demonstrate success in paying their loans on time, they become eligible for loans of even larger amounts, allowing them to finance expansion.

Case study: *An example of a microcredit institution is the Grameen Bank in Bangladesh, founded in 1976 by Mohammed Yunus. The Grameen Bank offers small loans to the impoverished without asking for collateral, and was the pioneering institution in the realm of microfinance. The bank has 8.4 million followers, 97% of whom are women, and the bank has repayment success rates between 95 to 98 percent.*

Challenges faced:

- The primary reason for the **lackadaisical effects of microcredit is the stringent repayment schedule** offered by most microcredit institutions.
- Since most borrowers to whom microcredit is given have **little to no credit history** as a result of their exclusion from traditional systems of credit, institutions offering microcredit are unable to judge the risk associated with lending to certain borrowers, and cannot be sure what the risk of them defaulting will be.
- To lower the risk of defaulting, microcredit lenders therefore **resort to repayment schedules** that demand an initial repayment that is almost immediate, after which borrowers must adhere to an inflexible weekly schedule for repayments.
- The effect of this is that borrowers are unable to use the loans on investments that will take some time to be fully realised, and instead are forced to use the loans they receive on short term investments that only boost production to an extent, and the overall growth of their incomes remains meager.
- A study found that having access to microcredit made very little difference to changing the lifestyles of borrowers, based on six indicators: household business profits, business expenditures, business revenues, consumption, consumer durables spending, and spending on temptation goods. These indicators only saw a 5% impact when microcredit was available.

Measures needed:

- There is a need for microcredit to consider adopting more flexible operating models, providing skills training and offering services such as portability of accounts to provide greater access for a longer duration of time.
- A diversified menu of micro loan products linked to sustainable income generation activities via micro enterprises or a creation of community-based pooled enterprise could possibly make it more attractive and compatible with the requirements of women.
- In addition, linking such developmental initiatives to an institution to nurture, monitor and handhold those activities in the formative stages is crucial for sustainability.

Conclusion:

Microcredit has a vast range of applications for poverty alleviation and general development, but existing systems require reform in multiple areas to allow for unfettered benefits that last. Furthermore, in areas where the application of microcredit is relatively new, microcredit systems must be carefully evaluated before they are put into place, so as to enable the greatest benefit from such institutions.

What is Development Finance Institution? In what way is it different from commercial banks? Discuss the need for India to have DFIs to Fund Infrastructure.(250 words)

The hindu

Why this question:

Recently The government has proposed to set up a development financial institution (DFI) to solve the infrastructure financing needs of the country.

Key demand of the question:

The question is straightforward and is about discussing the significance of development financial institution (DFI) and how it is different from commercial banks and its relevance in infrastructure funding.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You must give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In short explain DFI.

Body:

Explain what is DFI, what are the advantages of having DFI.

Discuss in what way they are different from commercial banks.

Then move onto discuss why India needs DFIs to Fund Infrastructure?

Conclusion:

Conclude with the significance of DFI for Indian infrastructure sector.

Introduction:

A Development Financial institution (DFI) is defined as “an institution endorsed or supported by Government of India primarily to provide development/Project finance to one or more sectors or sub-sectors of the economy. The first DFI was the **Industrial Financial Corporation of India (IFC)** that was launched in 1948. **IDBI, UTI, NABARD, EXIM Bank, SIDBI, NHB, IIFCL** etc are the other major DFIs.

Body:

The government has proposed to set up a development financial institution (DFI) to solve the infrastructure financing needs of the country.

DFI vis-à-vis banks:

- The institution differentiates itself by a thoughtful balance between commercial norms of operation, as adopted by any financial institution like commercial bank and developmental
- It emphasizes the long term financing of a project rather than collateral based financing apart from provision of long-term loans, equity capital, guarantees and underwriting functions, a development institution normally is also expected to upgrade the managerial and the other operational requirements of the assisted
- Its association with its clients is of an on-going nature and of being a companion in the project than that of a plain lender like banks.
- The basic stress of a DFI is on long-term finance and support for activities to the sectors of the economy where the risks may be higher that may not be feasible for commercial banks to finance them.

- Role of DFIs is not just long term financing but more of development of significant sectors of our economy for hastening growth.

DFI and Infrastructure Funding:

- To boost economic growth which would increase capital flows and energise capital markets.
- To improve long term finances.
- To provide credit enhancement for infrastructure and housing projects
- As India does not have a development bank, DFI would fulfil the need for us to have an institutional mechanism.
- Debt flow towards infrastructure projects would be improved.

Conclusion:

The RBI had also specified in 2017 that specialised banks could cater to the wholesale and long-term financing needs of the growing economy and possibly fill the gap in long-term financing. Thus, it would be wise to revive the concept of DFI if the government wishes to keep societal, cultural, regional, rural and environmental concerns intact.

Diversification of jobs from agriculture to other sectors is inevitable for the stability of rural economy in India. Discuss with suitable justifications.(250 words)

Reference

Why this question:

The question is about evaluating the need for diversification of Agri related jobs to bring stability in the rural economy of the country.

Key demand of the question:

Explain the need for diversifying the agricultural setup in the rural regions of India into other sectors for better stability of the country.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In short explain the current context of the question.

Body:

One must explain in detail the need for Diversification of jobs from agriculture to other sectors. First explain why should there be an encouragement to shift in the rural agrarian economy to other sectors. Contrary to the common perception about predominance of agriculture in rural economy, about two third of rural income is now generated in nonagricultural activities.

Similarly, it looks amazing to find that more than half of the value added in manufacturing sector in India is contributed by rural areas. However, the impressive growth of non-agricultural sector in rural India has not brought significant employment gains or reduction in

disparity in worker productivity. This underlines the need for a new approach to direct the transition of rural economy.

Conclusion:

Conclude with way ahead.

Introduction:

Agriculture is the primary source of livelihood for about 58 per cent of India's population. Gross Value Added by agriculture, forestry and fishing is estimated at Rs 17.67 trillion. Yet Indian agriculture faces multiple issues like small and marginal landholdings, lack of access to agricultural credit, environmental degradation, low value addition etc, which in turn affect the agricultural income.

Body:

Need for diversification of jobs:

- Recent survey by the **National Bank for Agriculture and Rural Development (All India Rural Financial Inclusion Survey)** shows that the average monthly income of rural households is Rs. 8,059, with agricultural households deriving only 43% of their income from agriculture. Most of it is from providing **daily wage labour and government jobs**.
- Reducing the dependence of rural masses on agriculture will help improve the overall income of the rural population
- The government has sought to double farmer income by raising minimum support prices, but such initiatives would apply directly only to 48% of rural India, with non-agricultural households being left behind
- Diversification, away from marginal farming, helps to **overcome land constraint** to income growth, while allowing farmers to cope with exogenous shocks through additional income.
- It even allows them to **reinvest in productivity enhancing agricultural technologies**.
- Conversation on raising farmer income needs to embrace non-farm diversification, an important pathway for empowering landless labourers and marginal farmers.
- It helps overcome the **disguised unemployment** which has raised the labour cost in other sectors due to poor supply of labour.
- According to the National Sample Survey Office's (NSSO's) periodic labour force survey (PLFS) report showed a collapse in agricultural jobs as a key reason behind rising unemployment, particularly in the rural parts of the country.
- The proportion of people, in the working age group, employed in agriculture fell by 8 percentage points for rural men and 9.3 percentage points for rural women, an analysis of the NSSO's PLFS report for 2017-18.
- The share of agriculture in rural output is 39%, whereas the rest is contributed by the **manufacturing, construction and services sectors**.

Benefits of Rural Non-Farm sector:

- When the economic base of the rural economy extends beyond agriculture, **rural-urban economic gaps** are bound to get narrower along with salutary effects in many other aspects associated with the life and aspirations of the people.
- Rural industries are generally less capital-intensive and more labour absorbing.
- Rural industrialization has significant spin-offs for agricultural development as well.
- Rural income distribution is much less unequal in areas where a wide network of non-farm avenues of employment exists; the lower strata of rural societies participate much more intensely in non-farm activities, though their involvement is much less remunerative as compared with that of the upper strata.

Measures needed for diversification of jobs:

- The livestock sector, which contributes around 4% to India's gross domestic product (GDP), is particularly critical. India has a mixed crop livestock farming system, with livestock becoming an important secondary source of income.
- There are immense possibilities for diversification in agricultural sector towards more value added activities such as food processing.
- This is an area, which has by and large remained unexploited, because reforms in agriculture sector having been very slow, resources have not yet started flowing into **food processing industries**.
- A strong push to sectors like **food processing, warehousing and logistics** will be very beneficial as it will help push up farmer incomes, reduce the wastage of perishable agriculture commodities and provide employment to rural workers.
- Besides diversification of agriculture there is a strong need to restructure the rural economy by way of **promotion of nonfarm activities in rural areas**.
- Whatever nonfarm activities are being carried out in the rural areas now are more out of desperation to eke out a living rather than an informed choice of a vocation, backed by infrastructural and institutional facilities.
- A **massive improvement in infrastructure** is required to promote growth of rural industries on a sustainable basis.
- This will go a long way in generating good quality employment and meeting many of the consumption requirements of rural people.
- Many steps have been taken in regard to village connectivity, e.g., Prime Minister Gram Sadak Yojana (PMGSY) and telecommunication.
- **Services sector growth** in rural areas could also play a critical role in improving rural income. Sectors like **transport and storage** have recorded reasonable growth in the rural area.

Conclusion:

India's rural development policies should increasingly focus on developing markets, infrastructure and institutions that can help sectors like manufacturing especially small scale industries. While India's post-Independence rural policy has primarily been about driving people away from agriculture and towards cities, India must now incentivise job creation at their doorstep.

Write a note on Bimal Jalan committee that was put in place to review the economic capital framework of the Reserve Bank of India.(250 words)

Indianexpress

Why this question:

The Reserve Bank of India (RBI), in consultation with the government, had set up a six-member committee headed by the former RBI Governor Bimal Jalan to review the economic capital framework of the Reserve Bank of India.

Key demand of the question:

One must discuss in detail the recommendations made by the committee.

Structure of the answer:

Introduction:

In short provide for the background that The RBI Board, which met recently decided to accept the Jalan Committee report and decided to transfer Rs 1.76 lakh crore to the government.

Body:

Explain the key recommendations of the Bimal Jamal committee –

While giving a clearer distinction between the two components of economic capital — realized equity and revaluation balances — the committee recommended that realised equity could be used for meeting all risks/ losses as they were primarily built up from retained earnings, while revaluation balances could be reckoned only as risk buffers against market risks as they represented unrealised valuation gains and hence were not distributable.

As proposed by the panel and approved by the RBI, the entire net income can be transferable to the government only if realised equity is above its requirement. If it is below the lower bound of requirement, risk provisioning will be made to the extent necessary and only the residual net income (if any) transferred to the Government.

Conclusion:

Conclude with significance of the recommendations made.

Introduction:

Reserve Bank of India (RBI) has approved the transfer of record Rs 1.76 lakh crore dividend and surplus reserves to the government. The excess reserve transfer is in line with the recommendation of former RBI governor Bimal Jalan-led panel constituted to decide size of capital reserves that the central bank should hold.

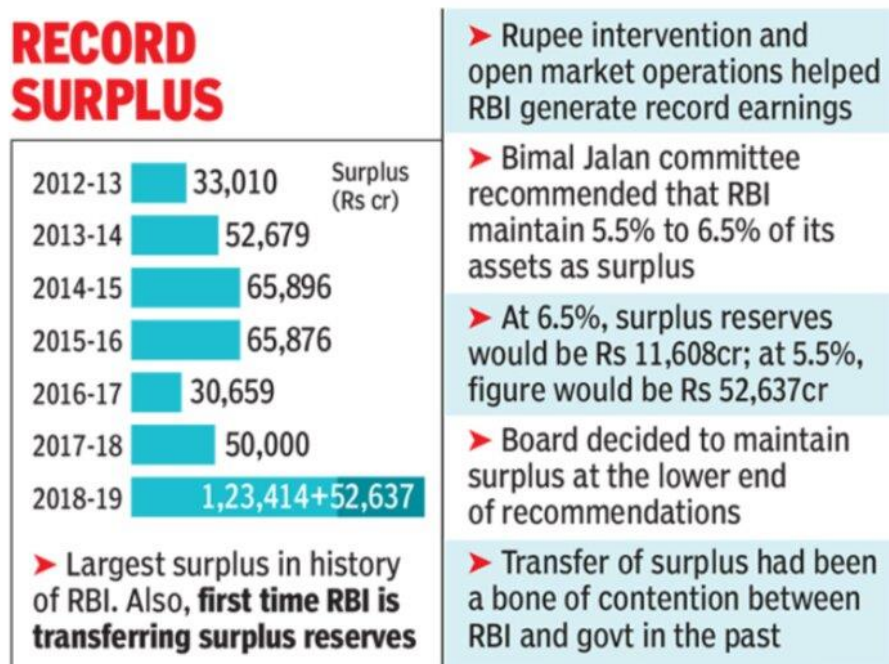
Body:

The Bimal Jalan panel, which was set up to examine the Reserve Bank of India's (RBI) economic capital framework (ECF), would recommend the transfer of the central bank's excess reserves to the government over a period of three-five years

RBI economic capital framework:

- Economic capital framework refers to the risk capital required by the central bank while taking into account different risks.

- The economic capital framework reflects the capital that an institution requires or needs to hold as a counter against unforeseen risks or events or losses in the future.
- The framework the government is talking about is basically about how much capital RBI needs for its operations and how much of the surplus it should pass on to the government.



Suggestions of Bimal Jalan committee:

- The panel recommended a **clear distinction between the two components of the economic capital of RBI i.e. Realized equity and Revaluation balances.**
- Revaluation reserves comprise of periodic marked-to-market unrealized/notional gains/losses in values of foreign currencies and gold, foreign securities and rupee securities, and a contingency fund.
- Realized equity, which is a form of a contingency fund for meeting all risks/losses primarily built up from retained earnings. It is also called the Contingent Risk Buffer (CBR).
- The Jalan committee has given a range of 5.5-6.5% of RBI's balance sheet for Contingent Risk Buffer.
- Adhering to the recommendations, the RBI has decided to set the CBR level at 5.5% of the balance sheet, while transferring the remaining excess reserves worth ₹52,637 crore to the government.
- If CBR is below the lower bound of requirement, risk provisioning will be made to the extent necessary and only the residual net income (if any) transferred to the Government.

- However keeping CBR at a lower range of 5.5% will reduce RBI's space to manoeuvre monetary policy.

Conclusion:

The committee's recommendations were based on the consideration of the role of central banks' financial resilience, cross-country practices, statutory provisions and the impact of the RBI's public policy mandate and operating environment on its balance sheet and the risks involved.

Discuss the key features of e-commerce presently witnessed in India, in what way do you think e-commerce 2.0 could significantly expand India's online market and make it truly inclusive?(250 words)

Livemint

Why this question:

The article captures a discussion on e-commerce 2.0 and its significance.

Key demand of the question:

One must discuss in detail the coming of more and more people in terms of mobile usage and in what way it could significantly impact India's online market and make it inclusive.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief state facts to justify the rising online presence of the people online.

Body:

Explain that by 2022, half a billion Indians are expected to come online through their mobile phones, a population we refer to as India's Next Half Billion (NHB). Their internet journey starts with them gaining internet access, then moving forward step by step to eventually making commercial transactions online.

Briefly discuss the coming of e-commerce in the country, differentiate how e-commerce 1.0 is different from the upcoming e-commerce 2.0.

Discuss the role played by it in expanding the Indian online markets.

Conclusion:

Conclude with significance.

Introduction:

Electronic commerce (e-commerce) is burgeoning as a means to doing business at a very rapid rate and is also showing every sign of continuing to expand. The rise of this new medium is attracting increasing attention by both private and public sector in order to remain upgraded and competitive so as to give 100 per cent services to their customers efficiently and effectively. India's new e-commerce policy came into effect on February 1, 2019.

Body:

Current e-Commerce scenario in India:

- The existing customer base of e-commerce 1.0 is relatively small about 40-50 million.

- Existing e-commerce platforms are better suited to sell structured and branded products (mostly electronics like mobile phones, televisions and air-conditioners).
- They mainly appeal to relatively sophisticated shoppers, for whom convenience and selection are important.
- Their English-first approach and user interfaces are constraints for the Next half billion segment.
- Moreover, the format does not enable an important mechanism for building trust, such as information on what others are doing on the platform.
- For sellers too, e-commerce is designed to cater to larger, organized players, whereas most sellers in India, even online, are small.
- Overall, online shopping is at present more about price discovery than product discovery.
- E-commerce has made important strides, but its penetration is still low in India.

e-Commerce 2.0 and its potential:

- E-commerce 2.0 will expand the market beyond the e-commerce 1.0.
- However, the new version will look, feel, and operate differently from the first wave of online shopping.
- It is expected by 2022, half a billion Indians are expected to come online through their mobile phones, a population we refer to as India's **Next Half Billion (NHB)**.
- The NHB differs considerably from the initial waves of internet users. They have very different income profiles, education levels, language skills, and social/cultural milieus.
- In the last 18-24 months, there has been considerable progress in addressing various barriers they face in their internet journey, due to efforts by entrepreneurs and various government initiatives.
- Consequently, the NHB is now at **an inflexion point for online shopping**.

Vision of e-Commerce 2.0:

- **Value consciousness:** E-commerce 2.0 will be dominated by smaller, unbranded items catering to value-conscious buyers.
- **Trust and confidence:** this is best built by social validation. To achieve this, e-commerce 2.0 players will leverage social communities and influencers on WhatsApp, Facebook, Instagram, and YouTube.
- **Resonance with the NHB context:** Products will be “pushed” to users instead of being discovered through search. This replicates the NHB’s offline shopping experience of being actively assisted and served by shop assistants on retail premises.

- The second wave of e-commerce could change the way Indians shop online, which will evolve from being a **hobby to a habit**.
- A **significant rise in women shoppers** in smaller cities is expected.
- Most importantly, e-commerce 2.0 could significantly expand India's online market and make it **truly inclusive**.

Enablers of e-Commerce 2.0:

- Affordable data to access the various e-Commerce websites and portals.
- Frugal innovation is helpful as well, with low-cost digital payment infrastructure as the prime example.
- Leveraging the communities on social media will help generate trust and confidence in the internet.
- Relatable language and creating inclusive user experiences such as mobile number-based log-ins, apart from simple navigation and purchase recommendations.
- Vernacular platforms and videos have recently emerged as the dominant mode of content consumption

Conclusion:

e-commerce 2.0 will differ from its earlier version in many ways. It will be intent and "impulse-driven", rather than being only intent-driven; make product discovery easier by offering a curated selection instead of a wide selection; focus on smaller and unbranded items instead of larger, branded ones; prioritize value over convenience; leverage influencers and social media; offer bulk-buying for better pricing; use Hinglish and Indic languages with a user interface built for India, and use the viral nature of content and social media platforms to drive customer acquisition.

The idea of merging banks has become a practice in the recent past. In this context, discuss the issues and potential benefits associated with merging of Public Sector Banks. To what extent, it would help to address the burgeoning of Non-Performing Assets?(250 words)
[The hindu](#)

Introduction:

Public Sector Banks (PSBs) in India are fragmented, with some of them reeling under the mounting pressures of Non Performing Assets (NPAs). Economic Survey points out that constant failure of banks to provide credit to both emerging and existing industries has resulted in stagnation in the economic growth of the nation. The government plans to merge 10 public sector banks into four. This would take the number of banks in the country from 27 in 2017 to 12.

Body:

Narasimham committee (1991 and 1998) suggested merger of strong banks both in public sector and even with the developmental financial institutions and NBFCs. **PJ Nayak Committee in 2014** had also suggested that government either merge or privatize state-owned banks.

Benefits of mergers of bank:

- **For Banks:**

- **Small banks can gear up to international standards** with innovative products and services with the accepted level of efficiency.
- PSBs, which are geographically concentrated, can **expand their coverage beyond their outreach.**
- A better and optimum size of the organization would help PSBs offer more and more products and services and help in integrated growth of the sector.
- Consolidation also helps in **improving the professional standards.**
- This will also end the unhealthy and intense competition going on even among public sector banks as of now.
- In the global market, the Indian banks will gain greater recognition and higher rating.
- The volume of inter-bank transactions will come down, resulting in **saving of considerable time in clearing and reconciliation of accounts.**
- This will also **reduce unnecessary interference by board members** in day to day affairs of the banks.
- After mergers, bargaining strength of bank staff will become more and visible.
- Bank staff may look forward to better wages and service conditions in future.
- The wide disparities between the staff of various banks in their service conditions and monetary benefits will narrow down.

- **For economy:**

- **Reduction in the cost of doing business.**
- **Technical inefficiency reduces.**
- The size of each business entity after merger is expected to **add strength to the Indian Banking System in general and Public Sector Banks in particular.**
- After merger, Indian Banks can **manage their liquidity** – short term as well as long term – position comfortably.
- **Synergy of operations and scale of economy** in the new entity will result in savings and higher profits.

- A great number of posts of CMD, ED, GM and Zonal Managers will be abolished, resulting in savings of crores of Rupee.
- Customers will have access to fewer banks offering them wider range of products at a lower cost.
- Mergers can **diversify risk management**.
- **For government:**
 - The **burden on the central government to recapitalize** the public sector banks again and again **will come down substantially**.
 - This will also **help in meeting more stringent norms under BASEL III**, especially capital adequacy ratio.
 - From regulatory perspective, monitoring and control of less number of banks will be easier after mergers.

Challenges associated with mergers:

- A **complex merger with a weaker and under-capitalized PSB** would stall the bank's recovery efforts as the weaknesses of one bank may get transferred and the merged entity may become weak.
- Bigger banks may follow **monopolistic behavior with increased market power** – resulting in neglect of local needs.
- Amalgamation of balance sheet of PSBs will only impact NPA cosmetically, without actually working on NPA recovery. This will further **divert the process of NPA resolution**.
- **Without addressing the governance issues in the banks**, merging two or three public sector banks may not change the architecture.
- Unless there is a change in the operating structures, mergers may not deliver the desired results in the long run.
- Problems to adjust top leadership in institutions and the unions.
- Mergers will result in shifting/closure of many ATMs, Branches and controlling offices, as it is not prudent and economical to keep so many banks concentrated in several pockets, notably in urban and metropolitan centres.
- Mergers will result in **immediate job losses** on account of large number of people taking VRS on one side and slow down or stoppage of further recruitment on the other.
- This will **worsen the unemployment situation further** and may create law and order problems and social disturbances.
- Mergers will result in **clash of different organizational cultures**. Conflicts will arise in the area of systems and processes too.

- When a big bank books huge loss or crumbles, there will be a big jolt in the entire banking industry. Its repercussions will be felt everywhere.

Way forward:

- Giving the **PSBs autonomy along with accountability.**
- Merged entity will require **capital support from the government**, otherwise such a merger would not improve their capitalisation profile.
- Dual regulation by the Ministry of Finance and RBI on PSBs often results in paralysis in decision making – which makes consolidation of banks a redundant measure if they are not given power to act swiftly, as pointed by **PJ Nayak**.
- **Governance of public banks needs to be improved** before making any significant change in any emerging architecture.
- Bigger banks offer more resilience to the banking sector but overlooking bigger red flags like strong credit appraisal and risk control system would do little help in creating robust banks.
- Therefore due focus on ensuring **strong foundation of PSBs is important.**
- RBI should continue to give banking licences for **more small finance banks as well as universal banks** along with bank mergers
- Government on its part would do well to start **infrastructure development banks to fund infrastructure projects** and relieve PSBs of this task.

Conclusion:

Merger is a good idea. However, this should be carried out with right banks for the right reasons. Merger is also tricky given the huge challenges banks face, including the bad loan problem that has plunged many public sector banks in an unprecedented crisis.

With the acceptance of the Bimal Jalan committee's report, the Reserve Bank of India (RBI) agreed to transfer one lakh seventy six thousand to the government. Suggest the ways through which government can prudently utilize these funds?(250 words)

[The hindu](#)

Introduction:

The central board of the Reserve Bank of India (RBI) recently decided to transfer a **surplus of Rs 1.76 lakh crore to the government**-its highest transfer ever-sparking a fierce debate. The government was, it must be noted, acting on the **recommendations of a committee chaired by former RBI governor Bimal Jalan, on capital transfer.**

Body:

Bimal Jalan committee Recommendations:

- The surplus from the central bank comprised two components-**Rs 1.23 lakh crore of surplus for the year 2018-19 and an additional Rs 52,637 crore of excess provisions** that was made available as per the revised economic capital framework recommended by the Bimal Jalan committee.
- It suggested that **the framework may be periodically reviewed after every five years.**
- It recommended **to align the central bank's accounting year with the financial year**, which could reduce the need for paying interim dividend.
- The panel recommended **clear distinction between the two components of economic capital, realised equity and revaluation balances.** This is because of the volatile nature of the revaluation reserves.
- **Only realised equity built from profits must be distributed.**
- The panel recommended that the **Contingency Fund be maintained within a range of 6.5% to 5.5% of RBI's balance sheet.**
- Hence, the excess from the pre-decided 5.5% level or Rs. 52,637 Cr has been written back, that is transferred to the Centre.
- Revaluation gains from market fluctuations on foreign currency, gold or other assets must be retained. **Revaluation balances were not distributable.**
- Hence, **bulk of RBI's legacy reserves are ring-fenced from transfer demands.**
- The Bimal Jalan committee should also be complimented for **clearly specifying that the revaluation reserve cannot be used to bridge shortfalls in other reserves.**

Ways through which the fund can be used prudently:

- The amount could either be used to **provide a fiscal stimulus to the economy**-which is in the **grip of a slowdown-**
- It could be used **to reduce off-balance sheet borrowings.**
- The other option is **to use it to meet an expected shortfall in revenue collections.**
- In the Union budget, the government had presented an optimistic scenario of raising Rs 4.76 lakh crore in additional resources to meet budget expenses.
- However, since there is a clear slowdown ahead, this revenue target may not be met, in which case the surplus from the RBI would be used to bridge the shortfall.
- Normally, the money is transferred to the **Consolidated Fund of India** from which salaries and pensions to government employees are paid and interest payments done, besides spending on government programmes.
- The large pay-out can help the government **cut back on planned borrowings and keep interest rates relatively low.**

- If the government manages to meet its revenue targets, the windfall gain can lead to a **lower fiscal deficit**.
- The other option is to **earmark these funds for public spending or specific projects**, which could lead to a **revival in demand in certain sectors and boost economic activity**.
- If the tax revenue growth picks up, then the government can use the additional money to **clear the dues of the Food Corporation of India and fertiliser companies** to minimise spillover of deficits to the next year.
- The additional funds can also be used to spend on **much-needed capital expenditure**.

Views of Economists:

- Some economists have welcomed the move as it will help the government counter the shortfall in revenue and tax collection.
- Since inflationary pressure is low, economists believe that the move will not have a negative impact in the long run.
- Another group of economists which include the likes of Raghuram Rajan and former RBI governor Urjit Patel said earlier that the move could put RBI in a vulnerable position apart from diminishing its autonomy.

Conclusion:

The decision of the RBI Board must be welcomed as it has not come a day sooner and should help the government in combating the economic slowdown and to conform to the fiscal targets. It is hoped that the government will be prudent in using these funds.

Major crops cropping patterns in various parts of the country, different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers

Organic Farming in India is an established age-old practice in India, but its ability to redress the grievances of farmers seems to be limited. Critically analyse. (250 words)

[Downtoearth](https://www.downtoearth.org.in)

Why this question:

The question aims to examine the success/achievements that organic farming can bring to farmers and to their income and in what way it has certain limitations.

Key demand of the question:

The answer must discuss the merits and demerits of organic farming.

Directive:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

Describe what is organic farming.

Body:

The answer must justify how India has the highest number of organic farmers globally, but most of them are struggling.

Discuss the factors involved, quote facts such as – India is home to 30 per cent of the total organic producers in the world, but accounts for just 2.59 per cent (1.5 million hectares) of the total organic cultivation area of 57.8 million hectares, according to the World of Organic Agriculture 2018 report.

Explain the issues involved, why farmers are unable to harness the full potential. What needs to be done etc.

Conclusion:

Conclude with way forward.

Introduction:

Organic farming is a technique, which involves cultivation of plants and rearing of animals in natural ways. This process involves the use of biological materials, avoiding synthetic substances to maintain soil fertility and ecological balance thereby minimizing pollution and wastage. FAO suggested that Organic agriculture enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity.

Body:

Status of Organic farming in India:

- India is home to **30 per cent of the total organic producers in the world, but accounts for just 2.59 per cent (1.5 million hectares) of the total organic cultivation area of 57.8 million hectares**, according to the **World of Organic Agriculture 2018 report**.
- India is the largest exporter of organic cotton worldwide.
- More than 30% of world's organic producers are in India
- India exporting over 300 products in 20 different categories.
- India exported 1.35 million metric tons of "certified organic" food in the year of 2015-16.
- Oilseeds comprised half of India's overall organic food export, followed by processed food products at 25%.
- Current Indian organic market is estimated at more than Rs. 4000 crore and it is likely to increase to 10,000 to 20,000 crore by 2020.
- Indian organic market has a combined annual growth rate of 25% compared to 16% global growth rate.
- Most organic farmers are struggling due to poor policy measures, rising input costs and limited market, says a study by the Associated Chambers of Commerce and Industry of India (ASSOCHAM) and global consultancy firm Ernst & Young.

Challenges:

- Due to relatively small volumes, the costs of organic food products are relatively high. According to the Indian Council of Agricultural Research, productivity on an average **dips by 6.7 per cent in the first year**, and the government needs to have a plan in place to support farmers during the transition.
- The cost of cultivation increases as it takes more time and energy to produce than its chemical-intensive counterpart.
- **High demand and low supply** has further created an inflationary pressure on organic food products.
- **Pest attack on organic crops** is another reason cited by the farmers for low productivity and demanded education and training to deal with it.
- **Specialised farmer training costs, higher processing and inventory holding costs, and increased packaging, logistics and distribution costs** add to the price of end products.
- The absence of organic food products across all segments in the market is a concern
- There is **low awareness at the producer level** on the difference between conventional farming and organic farming.
- At the consumer level, there is confusion between natural and organic products and limited understanding of the health benefits of organic food products
- Consumers are faced with a plethora of decisions around brands —imported or domestic, product quality, authenticity of claims and certifications.
- Even as farmers are struggling to find a better market, the **existing certification systems for organic food are making things difficult for them**. The certification systems are not only cumbersome and time-consuming, but also expensive.

Way forward:

- Supply-demand mismatch can be eased fundamentally by making organic production mainstream with location-specific hybrid production strategies
- Investments in achieving operations excellence by companies will facilitate lowering the cost of organic food products
- In order to sustain consumer trust, maintaining an accurate audit stream, and preventing cross-contamination with conventional goods would be crucial.
- Consumers should consume responsibly and stakeholders should prevent wastage along the supply chain.
- The Government must rope in agricultural scientists and international research institutions to develop organic herbicides.

- It is critical for companies involved in the organic food business to increase awareness among consumers in non-metro cities
- People across all income groups should have access to organic food.
- Establishing community-supported agricultural farms or with “grow your own food” programmes

Conclusion:

Organic agriculture is the **best insurance policy** that India can have with better performance on productivity, environmental impact, economic viability and social well-being. Focusing only on higher yields at the expense of other sustainability pillars (economics, environment and society) is not the food production system that India needs. What India needs is an integrated system that gives equal importance to all sustainability dimensions across the value chain and thus helps establish a healthy and well-fed society.

Do you think Big data analytics holds potential to bring revolutionary change in Agricultural Industry of the country? Discuss in detail the Role of data analysis in agriculture. (250 words)

Downtoearth

Why this question:

The role of big data analytics in agricultural industry.

Key demand of the question:

The answer must explain the possible role that big data analytics can play in revolutionizing agricultural industry in the country.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Begin with brief on what is Big data analytics.

Body:

Discussion should include the following:

Explain that in agriculture, big data is often viewed as a combination of technology and analytics that can collect and compile novel data and process it in a more useful and timely way to assist decision making.

Relate the relevance of it to different practices such as precision agriculture, organic farming, ZBNF etc.

Conclusion:

Conclude with way forward.

Introduction:

“Big data” often refers simply to the use of predictive analytics, user behavior analytics, or certain other advanced data analytics methods that extract value from data, and not just to a particular size of data set. Data tools can help determine changes required to maintain yields and meet food demands

Body:

Potential of Big Data in agriculture:

- The availability of data is on the grow because they are increasingly gathered by cheap and numerous information-sensing mobile devices, aerial (remote sensing), software logs, cameras, microphones, radio-frequency identification (RFID) readers and wireless sensor networks.
- In agriculture, big data is often viewed as a combination of technology and analytics that can collect and compile novel data and process it in a more useful and timely way to assist decision making.
- Real-time insights to help performance optimisation advance analytics can show how farmers are utilising their inputs and what adaptations are required to take account of emerging weather events or disease outbreaks.
- For instance, if Black Grass becomes problematic in a given region, suppliers can deploy big data techniques such as real-time micro-segmentation of customers to target promotional and marketing activities, thus facilitating better utilisation of marketing spends.
- Benefits include faster unearthing of valuable insights and the ability to develop and adapt products that meet specific customer needs on an ongoing basis.
- In this range, we can encounter autonomous vehicle devices farmers place in the ground to measure soil moisture and nutrient, predictive weather stations and image-capturing satellites and drones mapping out land and measuring crop health.
- These insights are extremely important since they tell the farmer when and how much to irrigate a field, crop health, weather predictions, pest infestations and even drought conditions.
- Considering the increasing labour shortages in the sector the capacity for big data analysis that lessens the need for physical manpower is of great advantage for agriculture.

Role of Big data in Agriculture:

- **Development of new seed traits:** Access to the plant genome with new ways to measure, map and drive information betters products.
- **Seed Selection:** Big-data businesses can analyse varieties of seeds across numerous fields, soil types, and climates and select the best.
- **Crop disease:** Similar to the way in which Google can identify flu outbreaks based on where web searches are originating, analysing crops across farms helps identify diseases that could ruin a potential harvest.
- **Irrigation:** Precision agriculture aids farmers in tailored and effective water management, helping in production, improving economic efficiency and minimising waste and environmental impact.

- **Weather:** Advanced analytics capabilities and agri-robotics such as aerial imagery, sensors help provide sophisticated local weather forecasts can help increasing global agricultural productivity over the next few decades.
- **Climate change:** Since, climate change and extreme weather events will demand proactive measures to adapt or develop resiliency, Big Data can bring in the right information to take informed decisions.
- **Food tracking:** Use of sensors and analytics to prevent spoilage and food-borne illnesses
- **Food processing:** They help in streamlining food processing value chains by finding the core determinants of process performance, and taking action to continually improve the accuracy, quality and yield of production. They also optimise production schedules based on supplier, customer, machine availability and cost constraints.
- **Effect on supply chains:** Seismic shifts in the supply chain of seed, crop inputs and food driven by the democratisation of technology and information
- **Loss control:** In India, every year 21 million tons of wheat is lost, primarily due to scare cold-storage centres and refrigerated vehicles, poor transportation facilities and unreliable electricity supply. Big Data has the potential of systematisation of demand forecasting thus reducing such losses.
- **Pricing:** A trading platform for agricultural commodities that links small-scale producers to retailers and bulk purchasers via mobile phone messaging can help send up-to-date market prices via an app or SMS and connect farmers with buyers, offering collective bargaining opportunities for small and marginal farmers.

Conclusion:

The big data revolution is in its early days and most of the potential for value creation is still unclaimed. But it has set the industry on a path of rapid change and new discoveries. Stakeholders committed to innovation will likely be the first to reap rewards. If the farmers would have been concerned about the infirmities in terms of data-based farming, production could be increased.

Palm oil easily constitutes over two-third of India's burgeoning vegetable oil import and amidst such huge demand sustainability of palm oil Industry in India lingers to face many tests. Analyse.(250 words)

[Financialexpress](#)

Why this question:

The question is based on the theme of sustainable palm oil industry and the challenges it is facing in the country.

Key demand of the question:

The answer must discuss the challenges being faced by the palm oil industry in the country and what needs to be done to overcome them.

Directive:

***analyze** – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.*

Structure of the answer:

Introduction:

Describe with statistics the palm oil growing regions of the country.

Body:

In recent years, rising incomes, expanding population and extant low per-capita availability have combined to boost India's edible oil consumption.

Then discuss the key problems associated.

Explain in what way with industry backing and consumer awareness, eco-friendly palm oil can find a lucrative market in the country.

Conclusion:

Conclude with way forward.

Introduction:

India is perhaps the biggest market for edible oil. In value terms vegetable oil imports are next only to crude and gold. It is the highest for any food commodity. India's import dependence in this has worsened to over 70%.

Body:

State of Indian Palm Oil:

- Oil palm crop is one of the highest oil (palm oil) yielding crops among the all perennial crops. Oil palm tree produces edible palm-oil as well as palm kernel-oil.
- In cooking oil, India depends on imports for two-thirds of its requirement.
- Domestic production meets three quarters of its annual requirement of 32 million tonnes because of initiatives taken by the present and previous governments
- Annual imports during the past three years have averaged 14.82 million tonnes at \$9.43 billion.
- Though palm oil has a high proportion of unhealthy saturated fats-45% compared to 6% in mustard oil-there is no way India can affordably meets its growing needs without relying on it.
- Annual imports of crude palm oil during the past three years have averaged 6.76 million tonnes, giving it a 46% share of the commodity's imports.
- Soybean and sunflower oils follow at some distance.

Issues facing palm oil industry in India:

- Self-sufficiency is almost impossible with oilseeds because there is **not enough land available**.
- Currently, it covers 3.45 lakh hectares out of a potential area of 19.33 lakh hectares, nearly half of it in Andhra Pradesh.
- Uncertainty of income deters smallholder farmers from investing in a long-gestation crop, which yields fruit after three years of planting for 27 years.

- **Instable prices:** The current monthly price of Fresh Fruit Bunches (FFB) in Andhra and Telangana varies between Rs 7,200 and Rs 8,000 a tonne. A year ago, it went down to Rs 6,000. For farmers to make a profit, the price should be Rs 9,500 a tonne
- **Low productivity** also haunts the industry. India produces five tonnes of FFB per hectare on average.
- **Low yields translate into low capacity utilisation** of the processing plants, which adds to the cost.
- India's **average palm oil yield** is 0.88 tonnes per hectare, compared to Malaysia's four tonnes and Andhra's two tonnes.
- The East Asian country has the advantage of daily rainfall. In India, **irrigation is a big cost**.
- As in sugarcane, oil palm farmers are required to supply to a mill in the vicinity which must pay the price fixed by state governments.
- In the north-east, the **condition of the roads** is such that FFB often cannot be brought to the mills within 24 hours and there is much oozing of oil owing to bumpy rides.

Measures needed:

- To make a dent in the import bill, India must increase palm oil production because oil palms have the highest productivity at 4,000 kg of oil per hectare. In contrast, mustard, which has a high oil content of 35-42%, yields 440-500 kg of oil per hectare at current levels of productivity.
- The government must pay farmers the difference between the normative cost and the actual purchase price.
- Support to farmers for planting materials, inter cropping & maintenance cost for gestation period (4 yrs), bore well, drip irrigation, harvesting tools.
- **Corporations should be allowed** to do oil palm cultivation as they can bear financial risks and do farming scientifically.
- Oil palm would have to be **declared a plantation crop**. This would lift the bar on companies from buying agricultural land.
- The **Commission on Agricultural Costs and Prices (CACP)**, which fixes minimum support prices, had recommended a **mix of smallholder farms and corporate plantations** in 2012.
- Small farmers can give the palms better care. Processing companies should do a better job of extending services to them
- A **ceiling on other vegetable oil import** will reduce the quantum of arrivals and support domestic producers. Ceiling should come with the provision to review it every 6 months, depending on the exigencies of the situation.

- **Import duties should be varied dynamically.** It should be fixed in a way so that imported oils are not cheaper than the MSP for domestic oils.
- **Special focus for promotion of oil palm in all NE states.**
- To meet the planting materials requirement for new plantation both from indigenous and imported sources.
- Capacity building of farmers and extension officials.
- **Assured procurement** of FFBs through processors.
- Supporting oil palm growers through **Market Intervention Scheme (MIS)** to provide remunerative prices of FFBs as and when international CPO price fall below \$ 800 per MT.

Conclusion:

Oil palm crop provides the excellent substitute of importing the oil. There is a need to help farmers of the country to achieve self-sufficiency in pulses and hope that they would repeat the “success” in oilseeds.

Issues related to direct and indirect farm subsidies and minimum support prices; Public Distribution System- objectives, functioning, limitations, revamping; issues of buffer stocks and food security; Technology missions; economics of animal-rearing.

“Providing portability of food security benefits all across the nation through One Nation One Ration Card can prove to be a game changer in the public distribution aspects of the country”. Comment.(250 words)

[Newindianexpress](#)

Why this question:

In a major boost to National Food Security, Government of India launched the One Nation-One Ration Card scheme on a pilot basis in four States namely Telangana, Andhra Pradesh, Maharashtra and Gujarat.

Key demand of the question:

Discuss the key features of the scheme and how it is helping in augmenting the PDS in the country.

Directive:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

Discuss the concept of one nation one card.

Body:

Discuss the following –

Features: Families who have food security cards can buy subsidized rice and wheat from any Fair Price Shop in these states. Their ration cards should be linked with Aadhar Number to avail this service.

Way ahead: The Centre is intended to extend the programme to all states by August next year so that the portability of the food security card implemented. There will also be creation of a Central Repository of all Ration Cards to help national level de-duplication.

Benefits: The national portability of Ration cards will ensure all beneficiaries especially the migrants in getting access to Public Distribution System (PDS) across the nation from any PDS shop of their own choice.

This will provide freedom to the beneficiaries as they will not be tied to any one PDS shop and reduce their dependence on shop owners and curtail instances of corruption.

Conclusion:

Conclude with way forward.

Introduction:

One Nation One Ration Card Scheme which will allow portability of food security benefits will be available across the country from 1st July, 2020. This means poor migrant workers will be able to buy subsidized rice and wheat from any ration shop in the country.

Body:

Highlights of the scheme:

- The poor migrant workers will be able to buy subsidised rice and wheat from any ration shop in the country but for that their ration cards must be linked to Aadhaar.
- Migrants would only be eligible for the subsidies supported by the Centre, which include rice sold at Rs. 3/kg and wheat at Rs. 2/kg, It would not include subsidies given by their respective state government in some other state.
- This scheme will ensure that no poor person is deprived of subsidised grains.
- The scheme can be implemented as already 77% of the ration shops across the country have PoS machines and more than 85% of people covered under the National Food Security Act (NFSA) have their cards linked to Aadhaar.
- For remaining beneficiaries, all the States have been given one more year to use point of sale (PoS) machines in the ration shops and implement the scheme.

Significance of Scheme:

- **For migrant labourers:**
 - India has had food security benefit schemes which have domicile based access.
 - 36 crore people or 37% of the population is that of migrant labourers. The scheme is therefore important for anyone who is going to move from one place to the other.
 - It happens that when one moves from one place to the other (for e.g. a government employee being transferred from one place to another), it takes about two to three months to get a ration card at that next place and then further more time to start getting commodities against the same.

- After the implementation of the scheme, it would be ensured that a migrant is able to access the benefits which are due to him in any part of the country.
- This would be ensured on the basis of Aadhaar authentication and a validated data.
- **For Women:**
 - ONORC will be particularly beneficial for women and other disadvantaged groups, given how social identity (caste, class and gender) and other contextual factors (including power relations) provide a strong backdrop in accessing PDS.
- **Provides Choice:**
 - ONORC will give the beneficiaries the opportunity to opt for the dealer of their choice. If any dealer misbehaves or misallocates, the beneficiary can switch to another FPS shop instantly.
 - ONORC lets the beneficiaries choose the PDS shop that best delivers on the attributes.
- **Curbing corruption:**
 - In ONORC Scheme, the fundamental prerequisite is de-duplication so that it is ensured that the same person does not figure as a beneficiary in two different locations of the country.
 - With the help of the scheme, the government would be able to rightly target the beneficiaries to provide them with the foodgrains under the PDS. The scheme is linked with Aadhaar and biometrics, this removes most possibilities of corruption.
 - The government is creating a **central data repository** to get all the details of ration card which are being maintained by states so that the repository acts as a clearing house or a server to do the cross checking on the basis of Aadhaar authentication.
 - This ensures that there is no corruption or duplication of the benefits that are being passed on to the beneficiaries. The government will ensure all these things with the help of technology.

Challenges:

- Since the scheme is based on technology, the government may face some technical challenges during the implementation of the scheme.
- The scheme will increase the woes of the common man and, the middlemen and corrupt PDS shop owners will exploit them.
- Tamil Nadu has opposed the proposal of the Centre, saying it would result in undesirable consequences and is against federalism.
- Within some states issue of intra state portability.
- Different states have different rates and these mismatching rates will be a big challenge.

- Few regional parties have expressed apprehensions on bearing the cost of additional ration cards. This is a matter which is to be settled between the states and the Government of India.
- One of the apprehensions mentioned by few states is the cost of additional food grain to be supplied to the migrant workers.
- However, the whole system is based on the entitlements mandated under the NFSA and this prevents the charges of additional cost. Beneficiaries will continue to pay the same issue prices that are fixed under the NFSA.
- The quality of services is markedly inferior for the subaltern groups with latent methods of discrimination such as lack of information, mixing of inferior grains, longer waiting time and, at times, even verbal abuse.

Way Forward:

- The food security scheme under the NFSA costs more than Rs 1 lakh crore per year. It is very expensive but is highly needed. There is a need to ensure that subsidized food grains ultimately go to the person or the family that is entitled to.
- The ONORC should also include access to health and other things.
- At the principal level, within the government, there is broad consensus on having a unified kind of service delivery system based on technology and identity.
- A unified service platform combining all the citizen centric services on the basis of few parameters of identity and other indicators of technology, is the need of the hour.
- ONORC combined with a rating system based on the experiences akin to the Uber/Ola system, the government can improve PDS by closer monitoring and control. Those PDS dealers who perform better could be rewarded.

Conclusion:

While ONORC has the potential to improve outcomes particularly for the subaltern groups, like any delivery mechanism, the entire value chain of making the system work needs to be closely monitored and backed by infrastructure. The availability of point of sale (PoS) systems at PDS shops, and its functioning needs to be ensured to check compromises in the entitlements.

Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

As India becomes a large domestic and international aviation market, the need to create a local leasing community has gained significance. In this context examine the merits and demerits of the move taken by the government for creating a rupee-based leasing industry.(250 words)

Financial Express

Why this question:

The Finance Minister, in her maiden budget, laid the foundation of building an important component of the aviation sector following the release of the 'Rupee Raftaar' report at the Global Aviation Summit in Mumbai in January earlier this year.

Key demand of the question:

The answer must discuss in detail the nuances of the aircraft leasing industry and the potential it holds for India.

Directive:

Examine – When asked to 'Examine', we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Discuss the facts /current scenario of Aviation industry.

Body:

The answer must discuss the advantages and disadvantages of creating rupee-based leasing industry in the country.

Explain what all factors would it address, what will be the key objectives etc.

Creating a rupee-based leasing industry will address many objectives: (1) high-skill job creation in financing and across the value chain, (2) retaining economic value in India, (3) offering local savers a new investment class, (4) creating a product more-suited to the needs and requirements of the local industry.

Conclusion:

Conclude with way forward and its significance.

Introduction:

The Finance Minister, in her maiden budget, laid the foundation of building an important component of the aviation sector. As the world's third largest domestic aviation market, the time is ripe for India to enter into aircraft financing and leasing activities from Indian shores. The announcement of this policy statement in the Budget follows the release of the '**Rupee Raftaar**' report at the Global Aviation Summit in Mumbai in January earlier this year.

Body:

Need for rupee-based lending industry:

- In the view of increasing demand and non-availability of own sources of aircraft financing, it is essential for India to set up its own structures for the same.
- Moreover, civil aviation sector is an important sector for development of the economy.
- In the civil aviation industry, aircraft financing is the most profitable segment and there are no entities in the country exploring this line of business.
- All the benefits from this gap are being enjoyed by foreign entities

Merits of Rupee-based lending industry:

- This is critical to the development of a self-reliant aviation industry, creating aspirational jobs in aviation finance, besides leveraging the business opportunities available in India's financial Special Economic Zones (SEZs), namely, International Financial Services Centre (IFSC).

- high-skill job creation in financing and across the value chain
- retaining economic value in India
- offering local savers a new investment class
- creating a product more-suited to the needs and requirements of the local industry.
- Helps create a lot of direct and indirect jobs in the aviation sector.
- Rupee-based lending offers local savers, depositors and investors an opportunity to access aircraft financing which is a liquid and low-default asset class. The local currency leases allow airlines to create a natural hedge on their leasing expenses.

Demerits:

- The development of this industry requires significant contribution from various stakeholders.
- For instance China, in order to attract business away from Ireland, created a specific low-tax dispensation.
- India imposes a wide variety of taxes (stamp duty, import duty, GST, income and capital gains taxes, among others) that require rationalisation.
- Local regulators need to allow long-term financing entities like insurance companies, mutual funds and pension funds to invest in securities of entities engaged in rupee-based leasing.
- Starting an NBFC or an investment trust in the GIFT City will require specific approvals from RBI.

Conclusion:

As India becomes a large domestic and international aviation market, the need to create a local leasing community will increase in importance. With more than a thousand planes on order, India is expected to import more than \$40 billion of equipment (at an average price of ~\$40 million per narrow-body aircraft) over the next decade or so. These numbers are expected to be higher—both on account of growth which will propel further orders and also the inclusion of more wide-body planes as more Indian airlines start their long-haul international operations.

Discuss the significance of Ocean energy as a potential renewable energy in India. (250 words)

[The hindubusinessline](#)

Why this question:

The Ministry of New and Renewable Energy has declared Ocean Energy as renewable energy. Thus, it is important from the point of view of GS paper III to examine the merits of ocean energy and its potential.

Key demand of the question:

The answer must write a short note on ocean energy as a potential renewable energy.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Begin with brief introduction on ocean energy.

Body:

The question is straightforward and nothing much to deliberate. One must categorically discuss ocean energy as the renewable energy.

Discuss the significance of such an energy – vastness, ease of use etc. Oceans cover more than 70% of Earth's surface, making them the world's largest solar collectors.

The sun's heat warms the surface water a lot more than the deep ocean water, and this temperature difference creates thermal energy. Just a small portion of the heat trapped in the ocean could power the world.

Ocean energy is currently under-utilized and as on date, India does not have any installed ocean energy capacity. It is mostly exploited through a few technologies including wave, tidal, current energy and ocean thermal energy.

Conclusion:

Conclude with way forward.

Introduction:

Oceans cover 70 percent of the earth's surface and represent an enormous amount of energy in the form of **wave, tidal, marine current and thermal gradient** known as Ocean energy. A variety of different technologies are currently under development throughout the world to harness this energy in all its forms. The government has approved a proposal to declare ocean energy as Renewable Energy.

Body:

Potential of Ocean Energy in India:

- Total identified potential of **Tidal Energy** is about **12455 MW**, with potential locations identified at **Khambhat & Kutch regions**, and large backwaters, where **barrage technology** could be used.
- The total theoretical potential of **wave energy in India** along the country's coast is estimated to be about **40,000 MW** – these are preliminary estimates. This energy is however less intensive than what is available in **more northern and southern latitudes**.
- **Ocean Thermal Energy Conversion** has a theoretical potential of **180,000 MW** in India subject to suitable technological evolution.

Various means of Ocean Energy:

- Oceans are literally throbbing with energy.
- There are at least several sources of energy in the seas.
- One is the **bobbing motion of the waters**, or **ocean swells** — you can place a flat surface on the waters, with a mechanical arm attached to it, and it becomes a pump that can be used to drive water or compressed air through a turbine to produce electricity.

- Another is by tapping into **tides**, which flow during one part of the day and ebb in another. You can generate electricity by channelling the tide and place a series of turbines in its path.
- One more way is to keep turbines on the sea bed at places where there is a **current** — a river within the sea.
- Yet another way is to get the **waves dash against pistons** in, say, a pipe, so as to compress air at the other end.
- Sea water is dense and heavy, when it moves it can punch hard — and, it never stops moving.

Significance of Ocean Energy:

- The world today needs more energy than it ever required. The growing population along with the growing industries requires more and more sources of energy.
- They have become inevitable in our daily life. However we also need to take care of the fact that this consumption should not affect much of the ecological balance of the planet.
- Given fluctuating fuel prices and the impact of global warming, Ocean Energy is now in a very strong position to commercialise the vast body of research and development it has invested in over the past 10 years.
- The sea is a limitless source of power and is a challenging environment, so in order to exploit wave energy commercially there are a number of key components required.
- Unlike wind, solar and other ocean energy sources such as wave power, tides and ocean currents are almost 100 percent predictable. The endless flows create reliability of the future energy availability.
- Moving water is 832 times denser than moving air, which multiplies the kinetic energy by the same factor, making oceans a energy-rich source.
- In many regions, land is a scarce resource. Therefore, on-shore solutions such as wind and solar compete with other users. Subsea ocean energy technologies are hidden in the depth of the ocean, out of sight and do not compete for land space.
- However, the deployment is currently limited but the sector has the potential to grow, fuelling economic growth, reduction of carbon footprint and creating jobs not only along the coasts but also inland along its supply chains.

Conclusion:

Ocean energy is renewable energy sector that surely needs more research to satisfy condition of cost-effectiveness which is at this point its biggest flaw. Since oceans cover almost two thirds of earth's surface, they truly present renewable energy source with extreme potential and one worth of further exploration.

Do you think a cooperative federalism framework can provide the required impetus to the civil aviation sector in the country? Examine.(250 words)

The hindu

Why this question:

The article discusses the significance of cooperative federalism to Indian civil aviation industry.

Key demand of the question:

One must discuss in detail the current problems facing civil aviation industry in India and in what way cooperative federalism framework can bring impetus to it.

Directive:

Examine – When asked to ‘Examine’, we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

In short define what is cooperative federalism.

Body:

Explain that civil aviation is a Central subject and one that barely got significant attention from the States until recently. It is evident from the fact that very few States in India have active civil aviation departments. This is also due to the reason that States have had a passive role, invariably, having had to look up to the Central government for the development of airports and enhancing air connectivity. However, in the last four years, the situation has changed considerably.

The cooperation of States is seen as a major factor in the growth of the civil aviation sector. The Regional Connectivity Scheme, UdeDeshkaAamNaagrik (UDAN), has become a game changer as this flagship programme has a built-in mechanism to develop stakes of State governments in the growth of the sector.

Conclusion:

Conclude with significance of cooperative federalism and the impetus that it can bring.

Introduction:

Cooperative federalism, also known as **marble-cake federalism**, is a concept of federalism in which federal, state, and local governments interact cooperatively and collectively to solve common problems, rather than making policies separately but more or less equally. It reflects the relationship between centre and state where they both come together and resolve the common problems with each other's' cooperation.

Body:

Current status of Civil Aviation in India:

- **Civil Aviation**, being a **central subject**, gets little attention from states.
- It is evident from the fact that very few States in India have active civil aviation departments.
- The **Regional Connectivity Scheme, Ude Desh ka Aam Naagrik (UDAN)**, has become a game changer as this flagship programme has a built-in mechanism to develop stakes of State governments in the growth of the sector.
- The **penetration of aviation market** in India stands at **7%**. There is potential to be among the global top three nations in terms of domestic and international passenger traffic.

Challenges faced by civil aviation sector:

- **High VAT on ATF:** States have very high rates of value-added tax (VAT) on Aviation Turbine Fuel, sometimes as high as 25%, which has dampened the growth trajectory of civil aviation. For any airline in India, the cost of Aviation Turbine Fuel (ATF) forms about 40% of the total operational cost.
- **Acquisition of land:** Land involves huge capital and is a scarce resource.
- Policy reluctance due to **financial non-viability** of the models to connect remote areas.
- **Capital intensive nature** of airline industry disincentivises the airlines to start operations in such areas where there is **lack of enough passenger traffic** to make them profitable.
- **Fundraising for Viability Gap Funding (VGF)** poses a major challenge.

Key policy interventions necessary to jump-start the aviation market:

- **Relief on ATF:** The airline industry is capital-intensive and works on very thin profit margins. Therefore, relief on ATF is a major incentive for airlines to augment their operations.
- For States, it would be a notional revenue loss which can be offset by enhanced economic activities as a result of increased air connectivity to the region.
- **Development and management of airports:** There are many regional airports which can be developed by States on their own or in collaboration with the Airports Authority of India (AAI).
- **PPP model:** There have been different models of public-private-partnership which can be leveraged to develop infrastructures.
- **Create 'no-frill airports':** Innovative models can be explored to create viable 'no-frill airports'. These functional airports can open up regions and change the way people travel.
- **Linking the hinterland:** States and the Central government can play a crucial role in supporting airlines to develop air services in the remote regions.
- Considering the infrastructural constraints and difficult terrain, small aircraft operators need to be encouraged.
- Areas which cannot be connected meaningfully by road or rail have to be linked by air.
- States can **converge their relevant schemes** relating to tourism, health, and insurance for supporting air connectivity to supplement the objectives of regional connectivity.
- For this States need to create a conducive business environment to facilitate the strong aspirations of a burgeoning Indian middle class to fly at least once a year.

Conclusion:

Developing airports, incentivising airlines and pooling resources of both the Union and State governments can accelerate the harmonised growth of the Indian civil aviation sector which would be equitable and inclusive.

Science and Technology- developments and their applications and effects in everyday life; Achievements of Indians in science & technology; indigenization of technology and developing new technology.

What is a cryptocurrency? Discuss the feasibility of a national cryptocurrency in India.(250 words)

The hindu

Why this question:

Recently, a government panel headed by senior bureaucrat Subhash Chandra Garg placed in the public domain a draft bill calling for a complete ban on private cryptocurrencies in India. The panel recommended a fine of up to ₹25 crore and a jail term of up to 10 years for anyone found to be owning or handling private cryptocurrencies. Thus, the question.

Key demand of the question:

The question aims to analyse the concept of cryptocurrency and its feasibility as a national currency.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Begin with brief on what is a cryptocurrency – “any information or code or number or token not being part of any official digital currency, generated through cryptographic means or otherwise, providing a digital representation of value which is exchange with or without consideration, with the promise or representation of having inherent value in any business activity which may involve risk of loss or an expectation of profits or income, or functions as a store of value or a unit of account and includes its use in any financial transaction or investment, but not limited to, investment schemes.”

Body:

Discussion should include the following:

Explain the context of the question – Inter-Ministerial Committee on Virtual Currencies headed by finance secretary Subhash Chandra Garg has submitted its report to the government. The committee set up by Centre has also proposed a draft bill ‘Banning of Cryptocurrency & Regulation of Official Digital Currency Bill, 2019’.

Discuss what are the key recommendations made, discuss pros and cons and form a fair and balanced opinion as to whether the currency should be allowed or banned completely.

Conclusion:

Conclude with way forward.

Introduction:

A cryptocurrency is a digital or virtual currency that uses cryptography for security. Cryptocurrencies use decentralized technology to let users make secure payments and store money without the need to use their name or go through a bank. They run on a distributed public ledger called blockchain, which is a

record of all transactions updated and held by currency holders. The most common cryptocurrencies are Bitcoin, Ethereum, Ripple, and Litecoin.

Facebook has announced a digital currency called **Libra** that will roll out for use in 2020 and allow the platform's billions of users across the globe to make financial transactions online.

Body:

Current state of Cryptocurrencies:

- Experts and central banks across the world are slowly arriving at the conclusion — written about in various research papers but not yet implemented in policy — that cryptocurrencies are here to stay.
- The world's premier cryptocurrency is within sniffing distance of \$9,000 apiece, and investors still seem bullish on it.
- The current value—at \$8,918 on 29 May—is below its peak of \$19,600-plus in late 2017, which was achieved after an exponential rise all through that year.
- That ascent took online traders by storm and stoked fears of a tulip mania-like “bubble” just before it crashed dramatically; by the end of 2018, it had slid to about one-fifth of its peak value.
- Bitcoin's market capitalization is now over \$150 billion, reportedly.
- India banned crypto-currencies in 2018, shortly after a Chinese clampdown.

Cryptocurrency is a disrupter to traditional notions of currency:

- The government is wary that regulation will provide legitimacy to “what is currently ambiguous,” and may lead to further rise in its valuation and end up contributing “to the investment bubble”.
- A currency that is not based on any real economic activity, unlike a sovereign currency whose value is based on the relative value of a tradeable basket of goods and services, cannot *prima facie* inspire much comfort.
- Bitcoin's value, astronomical even now at about \$8,300 but much below January 2018's stratospheric levels, is based on demand for a fixed supply of Bitcoins in the future it cannot exceed 21 million in number, of which 18 million has already been mined.
- The security offered by encryption of cryptocurrency may be breached by hackers who are always lurking for any point of weakness. This may end up costing investors huge amounts of money because prices are attached to the currencies.
- Cryptocurrency exists only in essence such that there are no physical coins and notes. As a result, there is, therefore, no central place where the currency can be deposited for safe keeping.

- Lack of regulation of cryptocurrency means it is not under any control or supervision. This attracts more investors thereby increasing their chances of investing in this technology.
- Cryptos are feared not just for their sheer speculative propensities, but also for their capacity to undermine sovereign currencies (the latter is an exaggerated apprehension).
- Virtual currency is being traded anonymously over the Internet and used for a host of anti-national and illegal activities, from terror funding to illicit trade of arms and drugs and so on.
- The online use of this currency, was without any border restrictions or geographical constraints, resulting in danger to the integrity and sovereignty of the nation.
- However, it does not make sense to go overboard and criminalise merely adventurous crypto speculators. There are no official or other data available that point towards misuse of cryptocurrencies for illegal ends

However, there are a **few advantages of cryptocurrencies**:

- One of the reasons why cryptocurrencies have gained global appeal is because of their secure nature. Cryptocurrencies are encoded into a database.
- Cryptocurrency trading draws its legitimacy from the unanimity of the participants in its network. It has gained global approval by most leaders as a legal medium of payment.
- No transaction fees are usually charged for transactions involving cryptocurrency.
- Cryptocurrency does away with the need for a regulator.
- By making everything public, cryptocurrency negates the need for a middleman.
- According to bitcoin.org, no individual or organisation can manipulate Bitcoins because it is cryptographically secure and do not contain customers' personal information.

Measures needed:

- Governments the world over have banned cryptocurrencies as a medium of exchange, and India is no exception.
- Yet in India, an estimated 30 lakh Bitcoins are reportedly in circulation. From a value of a little over ₹60,000 at the start of 2017, the Bitcoin now commands a value of nearly ₹6 lakh, with a global market cap of \$10.2 trillion. Cryptos are recognised in the US as an asset class.
- Firms like Paypal, Uber, Visa and Mastercard have all signed up as part of the consortium to control it. Each has invested \$10 million.
- Criminalising possession of cryptocurrencies will impact such investments.
- Bankers and investors now consider the cryptocurrency market at par with derivatives. The NYSE plans Bitcoin futures through a platform called **Bakkt**.

Conclusion:

Underlying the crypto movement is a libertarian belief: Cryptos are an alternative asset to fiat currencies; controlled by none, they cannot be manipulated by governments with vested interests. Legalising the cryptomarket can help beneficiaries emerge from the shadows and make productive investments in an economy witnessing a digital transformation. Crypto conduct calls for regulation, but not outright criminalisation.

Discuss the significant contributions of Vikram Sarabhai in building India's space program.(250 words)

The hindu

Why this question:

12th August was 100th birth anniversary of scientist and innovator Vikram Sarabhai. Dr. Sarabhai is considered as the father of India's space program, and his centenary comes just weeks after India's Chandrayaan-2 mission to the moon.

Demand of the question:

Explain in depth the contributions made by Dr. Sarabhai.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction

Bring out importance of such personalities in bringing space technology to the current conditions and stature in India.

Body

From the article take cues and discuss the specific contributions made by Dr Vikram Sarabhai to the Indian space technology – Dr. Sarabhai established the Indian National Committee for Space Research in 1962, which was later renamed the Indian Space Research Organization (ISRO). He helped set up the Thumba Equatorial Rocket Launching Station in Thiruvananthapuram, with its inaugural flight in November 1963. He pioneered the setting up of several institutions, such as the Indian Institute of Management in Ahmedabad, Community Science Centre etc.

Conclusion

Conclude with reassertion of the extraordinary contributions made by him.

Introduction:

Dr. Vikram Sarabhai is widely credited as the father of India's space programme. But the dashing scientist was so much more – some of India's most celebrated institutions today, from the Indian Institute of Management-Ahmedabad to the Indian Space Research Organisation, stand testament to his enduring legacy.

Body:

Contributions of Dr. Sarabhai:

- By 1962, with the aim to formulate India's space programme, he had been appointed the **founding chair of INCOSPAR**, which became the Indian Space Research Organisation (ISRO) in 1969.

- He successfully convinced the government of the importance of a space programme for a developing country like India after the Russian Sputnik launch.
- **Homi Jehangir Bhabha**, widely regarded as the **father of India's nuclear science program**, supported Dr. Sarabhai in setting up the first rocket launching station in India. This center was established at Thumba near Thiruvananthapuram on the coast of the Arabian Sea, primarily because of its proximity to the equator.
- As a result of Dr. Sarabhai's dialogue with NASA in 1966, the **Satellite Instructional Television Experiment (SITE)** was launched during July 1975 – July 1976.
- Sarabhai started a project for the fabrication and launch of an Indian Satellite. As a result, the first Indian satellite, **Aryabhata**, was put in orbit in 1975 from a Russian Cosmodrome.
- Sarabhai was very interested in science education and founded a Community Science Centre at Ahmedabad in 1966. Today, the Centre is called the **Vikram A Sarabhai Community Science Centre**.

Some of the most well-known institutions established by Dr. Sarabhai are:

- Physical Research Laboratory (PRL), Ahmedabad
- Indian Institute of Management (IIM), Ahmedabad
- Community Science Centre, Ahmedabad
- Darpan Academy for Performing Arts, Ahmedabad (along with his wife)
- Vikram Sarabhai Space Centre, Thiruvananthapuram
- Space Applications Centre, Ahmedabad (This institution came into existence after merging six institutions/centres established by Sarabhai)
- Faster Breeder Test Reactor (FBTR), Kalpakkam
- Variable Energy Cyclotron Project, Calcutta
- Electronics Corporation of India Limited (ECIL), Hyderabad
- Uranium Corporation of India Limited (UCIL), Jaduguda, Bihar

Conclusion:

Dr. Sarabhai emphasized the importance of a space program in his quote: **“There are some who question the relevance of space activities in a developing nation. To us, there is no ambiguity of purpose. We do not have the fantasy of competing with the economically advanced nations in the exploration of the moon or the planets or manned space-flight.”**

For his visionary work in the field of space science, this scientist was decorated with two of India's most honourable awards: **the Padma Bhushan (1966) and the Padma Vibhushan (awarded posthumously in 1972).**

In times when man has sent rovers to Mars and sent Spacecrafts beyond our solar system, why is there a resurgent interest in the moon? Discuss. (250 words)

Indianexpress

Why this question:

The article discusses in detail the reasons for resurgent interest in the moon.

Key demand of the question:

One must list down the possibly causes of Why is there a resurgence in interest in Moon.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief explain the significance of space missions.

Body:

Take hints from the article and list down causes as to despite multiple efforts made by the world countries the mission to moon have remained an unfinished agenda and thus there is dire need to resurge upon.

Conclusion:

Conclude with way forward.

Introduction:

July 20, 2019 marked the fiftieth anniversary of man's first landing on the Moon, "a giant leap for mankind", as Neil Armstrong described it. After the discovery of water on Lunar surface by Chandrayaan-1, there is a renewed surge of interest in moon travel is both an indication of the complexities of lunar missions and a future foretold.

Body:

Earlier Lunar missions:

- The Apollo missions to the moon were hardly guided by science objectives. They were driven mainly by geo-political and nationalistic considerations.
- The Apollo landing so early in our space age was, no doubt, **an outcome of Cold War rivalry**. It was all about seeking dominance in space. Resources were mobilised on a war-scale.
- There was huge amount of scientific information that came out of those missions. The rocks and other samples that the astronauts returned with were a wealth of information.
- One after the other, NASA landed six Apollo spacecraft on the moon, each carrying two astronauts with it, before abandoning the extremely expensive programme in 1972.
- Beaten in the race, the USSR, which was preparing feverishly to take a man to the moon, too, lost interest in just emulating the US and dropped its plans.
- All information about the moon at that time, gleaned from the rock samples brought back by the astronauts, as well as from other studies, pointed to moon having a bone-dry surface, **bereft of any water**.

- If human beings had to build a permanent scientific station on the moon, they would have to carry not just all their material from the earth, but also water.

Resurgence in Lunar missions:

- The scientists' perception of the moon changed considerably once traces of water molecules were discovered.
- In the 1990s, both the Clementine and the Lunar Prospector, the two NASA missions that restarted lunar exploration, picked up signals of water on moon. So did the Cassini mission in 1998, which flew by the moon on its way to Saturn.
- But the **conclusive evidence of the presence of water on the moon was delivered by two instruments on board Chandrayaan-1 — the Moon Mineralogy Mapper** placed by NASA, and ISRO's own **Moon Impact Probe** that was made to crash on the moon's surface.
- The discovery of water changes everything. It gives rise to a host of possibilities. It is this discovery of water that has triggered all the space faring nations to start looking at moon again
- In addition to the sustenance of life, water could also be utilised as a fuel to power rockets for deep interplanetary missions.

Potential outcomes of future lunar missions:

- **Fuel:** Water can be broken into hydrogen and hydroxide molecules. Hydrogen can be used for power generation as well as a propellant to in rockets.
- **Launch pad:** In the long run, if we are to use moon as a launch pad for going further into space, then we would need to develop technologies to extract hydrogen from the water on the moon and use it as a fuel.
- **Creation of New objects:** We have technologies that now make it possible to build in-situ, on the surface of the moon, using materials found there. We have 3-D printing technologies to achieve this.
- **Nuclear fusion fuel:** It is also very much in the realm of possibility to extract and use hydrogen as an energy source, or even the Helium-3 which is abundantly available on the moon, as a source of immense energy in nuclear fusion reactors.
- **International lunar space station:** to create a permanent space station, like the ISS, on the surface of the moon in the next 10 years. The ISS that serves as a permanent laboratory in space, about 400 km above the earth's surface, is due to retire latest by 2028, and no replacement for it has been decided as yet.

Conclusion:

The stage is now set again for a race to the moon over the next decade, and, this time, it is likely to be markedly different from the earlier one. In all probability, it will **involve multiple participants, be more collaborative than competitive**, and will be **guided by the overall objective of utilising the resources of**

the moon, setting up permanent facilities for scientific explorations and using it as a launch pad to take humans deeper into space.

What are Biosimilars? How are they different from Generic drugs? Discuss the possible prospects they hold for the Indian pharma industry.(250 words)

Why this question:

Pharma major Dr. Reddy's Laboratories Ltd has launched 'Versavo (bevacizumab)', a biosimilar of Roche's Avastin in India. The drug is for the treatment of several types of cancers.

Key demand of the question:

The answer must detail upon the concept of Biosimilars, compare them with Generic drugs and discuss the potential they hold for Indian Pharma Industry.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Introduce by explaining what are Biosimilars – A biosimilar is exactly what its name implies — it is a biologic that is “similar” to another biologic medicine (known as a reference product).

Body:

Discussion should include the following:

Biosimilars are ‘similar biologic drugs’, clinically equivalent, in terms of safety and efficacy, to biologic medicines. When the patent surrounding an original biologic’s formula is no longer protected, others companies can release cheaper biosimilars with no clinically meaningful differences.

Biosimilars v/s Generics – Nature of the drug, Manufacturing and testing, functioning etc.

Discuss significance – first explain issues plaguing Indian pharma industry and in what way Biosimilars can aid to fix issues.

Both Biosimilars and generic drugs are hugely important for affordable healthcare, and in recognition of this, Indian patent laws provide stringent protections against the practice of ‘evergreening’ by original drug manufacturers.

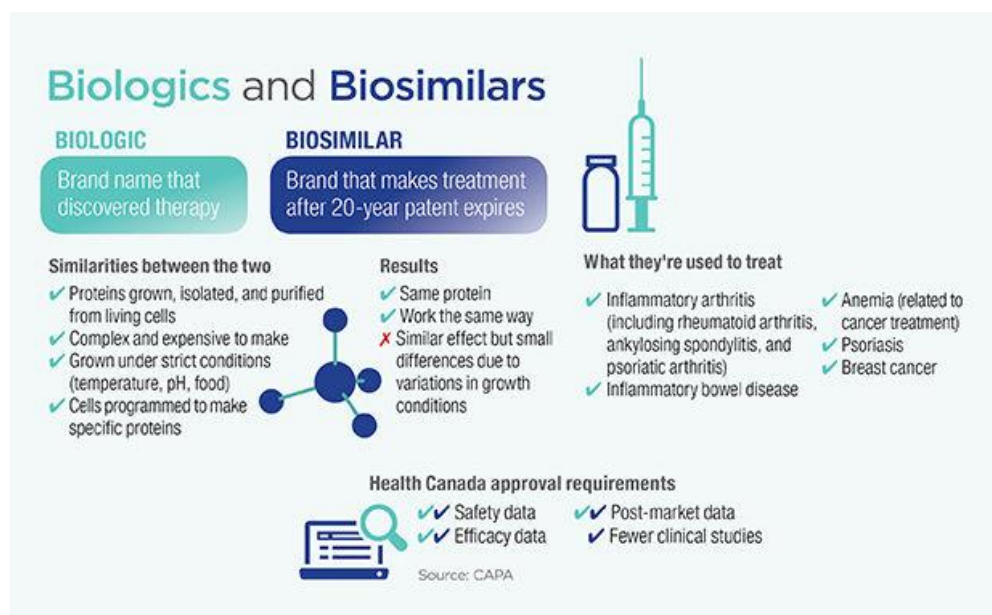
Conclusion:

Conclude with way forward.

Introduction:

A biosimilar is a **biologic medical product that is almost an identical copy of an original product that is manufactured by a different company**. Biosimilars are **officially approved versions of original “innovator” products** and can be **manufactured when the original product’s patent expires**. Biosimilars are the generic versions of biologics medicines made from animal or plant proteins as opposed to chemicals.

Body:



Difference between biosimilars and generics:

- **Biosimilars** involve developing **equivalent of biological entity** while **generics** involve developing **equivalent of a chemical entity-the Active Pharmaceutical Ingredient**.
- In case of biosimilars, biological entities being some ward different (and not as it is of replica), every organism has to be engineered to produce the same therapeutic effect while in generics, the copies of API can be generated
- Bio-similars differ from generics – in complexity, in the manufacturing processes and in the data needed to demonstrate similarity for approval. The structure of Generic Simple and well-defined whereas for Bio-similar its Complex with potential structural variations.
- Regulatory procedure to get approval for biosimilars is complex as compared to that of a generic.

Prospects of Biosimilars:

- The growth of the biologics market for the treatment of cancer (monoclonal antibodies), diabetes (insulin) and many other auto-immune diseases has in turn resulted in creating a global opportunity for biosimilars also.
- Many Indian pharma companies are now making substantial investments into biosimilar development and production for gaining the first mover advantage.
- In 2014, Zydus Cadila became the first company in the world to launch the biosimilar of Adalimumab patented by the US drug major AbbVie, which is being used to treat rheumatoid arthritis and other auto immune disorders.
- As the biologics are priced very high, it is necessary for countries to reduce prices through biosimilars.

- The growth in the biosimilars market is welcome from a human development standpoint because they are more affordable than biologics, the high cost of which often puts them out of reach of many patients.
- In recent times, patents of some biologics have expired and more will expire before 2020. So moving towards biosimilars can fill the gap.
- Targeted towards Non-communicable diseases (cancer, asthma, and arthritis):
 - There is an alarming spike across developing countries in the prevalence of non-communicable diseases.
 - Therefore, promoting the production of complex generics and biosimilars can have a positive development impact given how targeted they are toward treating non-communicable diseases such as cancer, asthma, and arthritis.
- Biosimilars industry can act as a springboard for the pharma companies to innovate, excel and earn profit

Challenges faced:

- The development is itself lengthy and expensive, and could cost more than Rs 100 crore and take up to six or seven years.
- It is hard to generate investor interest if a product hits the market only after seven years. So, India is unlikely to see startups in biosimilars, which could also drive consolidation of some players.
- Expertise in biology is essential, and this subject does not yet have critical mass in India. India has fewer research labs in biology than a big state in Europe or the US. And, yet, things have improved in the last ten years, as experience has built up in technology and regulation.

Way forward:

- Governments can support growth in this segment by clarifying the regulatory framework for them, which is still evolving in many countries. China is a recent example, where the government has identified biopharma, including biosimilars, as a priority area for the country.
- India has to expand the biology research ecosystem by investing in education and fundamental research.
- At the same time, a regulatory mechanism needs to be put in place and appropriate monitoring needs to be done to ensure that unfair and unethical practices are abstained from in preparation of biosimilars.

The evolution of the mobile phone to smartphone has brought about a radical change in our everyday life, discuss how much more, and how much quicker can social robots shift societal paradigms? How should we prepare ourselves to meet the AI and social robotics revolution? Examine.(250 words)

Livemint

Why this question:

The question is based on the theme of societal effects that the robotics and AI are bringing into the society of today.

Key demand of the question:

One must discuss in detail the impact of social robots on the world society in detail.

Directive:

Examine – When asked to ‘Examine’, we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Set the context of the question briefly.

Body:

Explain that the question “man or machine?” has been replaced with “man and machine”.

Discuss and opine whether humanoids can go beyond the industrial world to become part of our personal lives.

Discuss the case studies of humanoid robots – Sophia and Han.

Explain in what way robots can impact the society. Give case studies from the article and substantiate to form a stand.

Conclusion:

Conclude with significance of AI and robotics and its potential and that however the ethical concerns related to it remain a grey area that require diligence.

Introduction:

Advances in artificial intelligence (AI), machine learning (ML) and natural language processing (NLP) have enabled humans to create humanoid news anchors, psychologists, personal assistants, and more. While we are yet to see a fully-functional humanoid robot become mainstream, the day is not far away.

Body:

The question “man or machine?” has been replaced with “man and machine”. The interesting possibility, however, is whether humanoids can go beyond the industrial world to become part of our personal lives.

Social robots and shift in societal paradigms:

- **Geriatric care:** The Japanese government has moved in early on this possibility, and is funding the development of care robots for the elderly. Tokyo’s Shin-tomi nursing home already deploys 20 types of robots for such care.
- **Personal use: Samsung’s Bot Care**—enables users to check their blood pressure, heart rate and sleep patterns. It also reminds them to take medications, alerts family members in case of emergencies. Bot Air assesses air quality and takes remedial measures.

- **Shopping: Bot Retail** offers support to customers while shopping. **Piaggio's Gita** is a cargo bot that can be used as an autonomous shopping trolley
- **Help for disabled:** The **GEMS (Gait Enhancing and Motivating System)** exoskeleton supports people who have trouble walking, running or standing up, and prevents overworking of their muscles.
- non-humanoid social robots are crossing the experimental stage to mass production. MiRo is one of the world's first robots that has a brain-inspired biomimetic operating system.

Humanoids influence on Humans:

- Research strongly indicates that as humans we can be influenced by robots, much like we are by fellow humans.
- True, we develop robots with our knowledge and mastery over the human mind.
- The recent instance of Facebook having to shut down its AI engine (after it was found it had developed its own language that could not be understood by humans) does venture into the grayer and darker side of AI.
- The fear of loss of jobs due to increased robotization.
- AI powered bots have also been used to influence humans perceptions, views and opinions. Such activities are rampantly being promoted through social media platforms for various ulterior purposes using fake news, unethical advertisements, etc which then have huge negative consequences.
- AI based weapons are fast gaining currency. Since humans can be replaced by such machines, declaring war would become more convenient. These machines can wreck havoc if uncontrolled endangering the human race itself.
- AI is being used for extensive surveillance as in China which violates right to privacy. Such intelligence can be even used to selectively target and eliminate opponents which instil deep fear among people who would like to raise voice against injustice.
- Humans can pass on their limitations to robots. E.g.: biases, prejudices, discrimination, etc. A recent report in USA revealed that robot can be racist

Measures needed to meet the AI and social robotics revolution:

- With the proliferation of AI, it is important for us to know the ethical basis of every AI system that we use or is used on us.
- Sometimes, even an inclusive intention may need careful scrutiny.
- Ethical norms regarding uses of AI and our ability to regulate them in an intelligent and beneficial manner should keep pace with the fast changing technological capabilities.
- Understanding and discussing the ethical basis of AI is important for India.

Conclusion:

The transformative capability of AI in India is huge, and must be rooted in an egalitarian and humanitarian basis. Any institutional framework for AI should have a multidisciplinary and multi-stakeholder approach, and have an explicit focus on the ethical basis.

The idea of providing Biometric Seafarer Identity Document (BSID) by Government of India is an accomplishment in the field of science and technology and is valuable on multiple fronts. Discuss.(250 words)

Livemint

Why this question:

India recently became the first country to launch world's first facial biometric-based ID for seafarers.

Key demand of the question:

One must discuss in detail the achievement India has made through the launch of such a technology that can have positive impacts in multiple dimensions.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

First explain the importance of identification to Indian seafarers.

Body:

Explain that in a move to boost employment in the coastal shipping sector, India has become the first country in the world to issue a Biometric Seafarer Identity Document (BSID) to its seafarers.

Discuss the key features of BSID – The BSID has the dimensions of a smart ID card. It introduces modern security features like an embedded biometric chip, as well as optical security features such as micro prints/micro texts and Unique Guilloche pattern. The security of the BSID card is ensured at various levels and through different methods. At the time of data capturing the live face is cross matched through passport photo using a face matching software. A software has been developed for capturing the facial biometrics and its authentication through the public key infrastructure.

Explain how the technology is a major boost in various ways to the seafarers.

Conclusion:

Conclude with significance.

Introduction:

India recently became the first country to launch **world's first facial biometric-based ID for seafarers (BSID)**. The new document will give a **foolproof identification to Indian seafarers** which will facilitate their movement and help in identifying them from any location in the world. The new card is in confirmation of the Convention No. 185 of the International Labour Organisation on BSID. India ratified the Convention in October 2015.

Body:

BSID project:

- In India the BSID project has been taken up in collaboration with Centre for Development of Advanced Computing (CDAC), Mumbai.

- The Government notified the **Merchant Shipping (Seafarers Bio-metric Identification Document) Rules** in 2016.
- Every Indian seafarer who possesses a valid Continuous Discharge Certificate issued by the Govt. of India will be eligible for issue of a BSID.
- Nine data collection centers have been setup at Mumbai, Kolkata, Chennai, Noida, Goa, New Mangalore, Kochi, Vizag & Kandla for issue of BSID.

Working of BSID:

- It introduces **modern security features**.
- It will have a **biometric chip embedded in it**.
- The security of the BSID card is **ensured at various levels and through different methods**.
- At the time of data capturing, the live face is cross matched through passport photo using a face matching software.
- The card has **two optical security features- Micro prints/micro texts and Unique Guilloche pattern**.
- A software has been developed for capturing the facial biometrics and its authentication through the public key infrastructure.

Significance of BSID:

- The BSID with new facial biometric technology is a marked improvement over the two finger or iris based bio-metric data, with modern security features.
- It will make the identification of the SID holder more reliable and efficient, while **protecting their dignity and privacy**.
- It will give a **foolproof identification to our seafarers** which will **facilitate their movement, provide ease of getting jobs and help in identifying them from any location in the world**.
- A record of each SID issued will be maintained in a national database and its **related information will be internationally accessible**.
- The total number of Indian seafarers who were employed on Indian or foreign flag vessels increased from 154349 in 2017 to 208799 this year, showing an unprecedented increase of 35%

Conclusion:

With Sagarmala on the anvil and security of the long coastline of India, BSID will help secure the seafarers as well as safety of India from transgressors.

Conservation, environmental pollution and degradation, environmental impact assessment

A combination of increased urbanization, climate change and weak infrastructure is rapidly depleting water supply in cities across the country, discuss the various causes leading to such a crisis in Indian cities along with suggestions to overcome the same. (250 words)

[livemint](#)

Why this question:

The article discusses in detail in what way the Indian cities are dealing with water crisis.

Key demand of the question:

Discussion should be about the problems in Indian cities related to water crisis.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Quote the recent incidences depicting the water crisis situations in the cities.

Body:

The article very well captures how and why Indian cities are facing water issues and if not addressed in time the situation may get even worse.

Explain the interlinkages between water crisis and other factors that are contributing to it.

Take hints from the article and organize your answer according to the context of the question.

Conclusion:

Conclude with suggesting solutions to the problem.

Introduction:

The **NITI Aayog report on Composite Water Management Index (CWMI)** said that India is facing its 'worst' water crisis in history. Taps in Shimla went dry in summer of 2018, posing an unprecedented water crisis in the hill town. According to a forecast by the Asian Development Bank, India will have a water deficit of 50% by 2030. Recent studies also ranked Chennai and Delhi at the top of the 27 most vulnerable Asian cities in terms of low per-day water availability Mumbai and Kolkata follow close.

Body:

India's water crisis is more serious than its energy crisis:

- The water crisis in India is more dire than imagined.
- The annual per capita availability of water continues to decline sharply from about 5,177 cubic metres in 1951 to about 1,720 cubic metres in 2019.
- The NITI Aayog in its report on Composite Water Management Index (2018) has underlined that currently 600 million people face high to extreme water stress.
- Twenty-one cities, including Delhi, Bengaluru, Chennai and Hyderabad will run out of groundwater by 2020, affecting 100 million people.

- Apart from mega cities, many fast-growing small and medium cities such as Jamshedpur, Kanpur, Dhanbad, Meerut, Faridabad, Visakhapatnam, Madurai and Hyderabad also figure in this list.
- The demand-supply gap in most of these cities ranges from 30 per cent to as much as 70 per cent.
- About two lakh die every year due to inadequate access to safe water, about three-fourths of the household do not get drinking water at their premise and about 70 per cent of water is contaminated.
- The rate of groundwater extraction is so severe that NASA's findings suggest that India's water table is declining alarmingly at a rate of about 0.3 metres per year.
- At this rate of depletion, India will have only 22 per cent of the present daily per capita water available in 2050, possibly forcing the country to import water.
- About 81 per cent of India's ultimate irrigation potential, estimated at 140 million hectares, has already been created and thus the scope for further expansion of irrigation infrastructure on a large scale is limited.
- Climate experts have predicted that there will be fewer rainy days in the future but in those days it would rain more.

Causative factors for water crisis:

- A combination of population explosion, unplanned growth of the city and its expansion to some traditional catchment areas (a region from which rainfall flows into a river, lake, or reservoir) have led to a reduction in the natural flow of water, and large-scale deforestation.
- Climate change, leading to much lower precipitation during the winter months. As a result, the natural flow and recharge of water in the region has fallen sharply
- Failure of State governments to check unplanned development and exploitation of water resources. There is no attempt at the central or state levels to manage water quantity and quality
- The vegetation pattern has changed, tree cover is shrinking and unscientific dumping of debris in water streams is rampant.
- The debris blocks the natural course of water bodies.
- Increasing number of tube wells resulting in depletion of groundwater.
- Changes in farming patterns lead to consumption of more water for irrigation and also change the soil profile because of the use of fertilizers
- The states ranked lowest like Uttar Pradesh, Haryana and Jharkhand – are home to almost half of India's population along with the majority of its agricultural produce.

- There is also a **lack of interest in maintaining India's traditional water harvesting structures.**

Measures needed:

- **Structural measures:**

- Putting in place an efficient piped supply system (without leakage of pipes) has to be top on the agenda.
- Ancient India had well-managed wells and canal systems. Indigenous water harvesting systems need to be revived and protected at the local level. Examples: Karez, Bawli, Vav etc
- Digging of rainwater harvesting pits must be made mandatory for all types of buildings, both in urban and rural areas.
- **Treating the Greywater and reusing it** needs to be adopted by countries like Israel (upto 85%). It could be used to recharge depleted aquifers and use on crops.
- Initiatives such as **community water storage and decentralized treatment facilities, including elevated water towers or reservoirs and water ATMs**, based on a realistic understanding of the costs involved, can help support the city's water distribution.
- Technologies capable of converting non-drinkable water into fresh, consumable water, offering a potential solution to the impending water crisis are needed.
Example: **Desalination technologies in Coastal areas, Water-sterilization in polluted water areas.**

- **Non-structural measures:**

- The **World Bank's Water Scarce Cities Initiative** seeks to promote an integrated approach, aims at managing water resources and service delivery in water-scarce cities as the basis for building climate change resilience.
- Groundwater extraction patterns need to be better understood through robust data collection
- Decentralisation of irrigation commands, offering higher financial flows to well-performing States through a **National Irrigation Management Fund**.
- **Public awareness campaigns, tax incentives for water conservation and the use of technology interfaces** can also go a long way in addressing the water problem. **Example**, measures such as water credits can be introduced with tax benefits as incentives for efficient use and recycling of water.
- A collaborative approach like the adoption of a public-private partnership model for water projects can help. **Example**, in Netherlands, water companies are incorporated as

private companies, with the local and national governments being majority shareholders.

- Sustained measures should be taken to prevent pollution of water bodies and contamination of groundwater.
- Ensuring proper treatment of domestic and industrial waste water is also essential.

Conclusion:

Primarily water is not valued in India. “People think it is free”. In order to meet the future urban water challenges, there needs to be a shift in the way we manage urban water systems. An **Integrated Urban Water Management approach** must be adopted which involves managing freshwater, wastewater, and storm water, using an urban area as the unit of management.

The recently released IPCC report has inferred that reduction in global heating would require transformation of food production and land management, in the light of the above statement discuss the interlinkages of climate change and land management and recommend what needs to be done. (250 words)

[Indianexpress](#)

Why this question:

The article discusses the findings of the recently released IPCC report and its inference.

Demand of the question:

The answer must discuss the interlinkages of climate change and land management and recommend what needs to be done.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction

In brief quote the key highlights of the IPCC report.

Body

Intergovernmental Panel on Climate Change special report on climate change and land, released in Geneva on Thursday, found limiting global heating to below 2 degree Celsius can only be achieved by reducing emissions from all sectors – including land and food.

It finds the climate crisis is affecting all aspects of food security – including availability, price and nutrition – but that coordinated action to cut global emissions could simultaneously improve land resources, food security and nutrition and help to address hunger.

Discuss the aspect of land; Land use has always been part of conversations on climate change and activities like afforestation have held an important place in the fight against global warming.

Suggest solutions as what needs to be done.

Conclusion

Conclude with significance of the findings and need for urgent action.

Introduction:

The **Intergovernmental Panel on Climate Change’s (IPCC) report** on ‘**Climate Change and Land**’ reveals the relation between climate change and land use pattern. It presents the most recent evidence on how

the different uses of land like forests, agriculture, and urbanization are affecting and getting affected by climate change.

Body:

Key findings of report:

- The report talks about the contribution of land-related activities to global warming.
- It also talks about the manner in which even existential activities like food production contributes to global warming and is also affected by it.
- If pre-production and post-production activities are taken into account, food production could contribute as much as 37% of all greenhouse gas emissions (GHG) every year.
- It points out that nearly 25% of all food produced is either lost or wasted. And even the decomposition of the waste releases emissions.

Linkage between land use and climate change:

- Land use, and changes in land use, has always been an integral part of the conversation on climate change.
- That is because land acts as both the **source as well as a sink of carbon**.
- Activities like agriculture, cattle rearing, etc are a major source of methane and nitrous oxide, which are more dangerous than CO₂.
- Soil, trees, plantations and forests absorb CO₂ for photosynthesis, thus reducing the overall CO₂ content in the atmosphere.
- This is the reason why large-scale land use changes like deforestation, urbanisation or change in cropping pattern, have a direct impact on the overall emissions of greenhouse gases.

Impact on Food security:

- Climate change is affecting food security through increasing temperatures, changing precipitation patterns, and greater frequency of some extreme events.
- Agricultural Production: Increasing temperatures are affecting agricultural productivity in higher latitudes, raising yields of some crops (maize, cotton, wheat, sugar beets), while yields of others (maize, wheat, barley) are declining in lower-latitude regions.
- Nutritional Quality: Increased atmospheric CO₂ levels can lower the nutritional quality of crops.
- Livestock Production: Future climate change could affect livestock production.
- An increase in desertification and heatwaves could have a direct impact on animal morbidity, mortality and distress that in turn could adversely affect the food security.

- Higher Prices: Report states that cereal prices could increase by 1-29% by 2050 as a result of climate change, leading to higher food prices and increased risk of food insecurity and hunger

Measures needed:

- The measures include a major re-evaluation of land use including agricultural practices.
- Increasing land productivity, wasting less food, changing dietary habits of people from cattle meat to other types of meat.
- The report notes that, if proper changes to the land use pattern in agriculture and animal is implemented, 2.3 to 9 billion tonnes of CO2 equivalent can be avoided by 2050.
- Also with changes to the people's dietary habits CO2 equivalent of 8 billion tonnes can be avoided by 2050.

Conclusion:

India's action plan on climate change gives due recognition to the above fact. It has a very important component of forests. Under INDCs, India has pledged to create an additional carbon sink of about 2.5 billion to 3 billion tonnes by the year 2032 by increasing its forest cover and planting more trees.

"Large parts of India have been facing calamitous floods, the frequency of such disasters has been on the rise. How disastrous they prove, however, would depend on how prepared we are." Critically analyse in the light of recent incidents. (250 words)

[livemint](#)

Why this question:

The article paints a dismal picture of the flood conditions facing the country and the reasons underlying for their impact.

Demand of the question:

The answer must discuss in detail the need and necessity of disaster preparedness and how this aspect alone has much to decide on the nature of disaster and its impact.

Directive word:

***Critically analyze** – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.*

Structure of the answer:

Introduction

Brief about the recent flood situation in the country.

Body

Point out to the causes of the occurrence of the disasters; explain in what way the impact of the floods has been huge and impulsive owing to lack of preparedness.

Discuss that How well a country mobilizes resources to tackle disasters, natural or otherwise, is a sign of how advanced it really is. India has made progress, but our efforts need to be stepped up.

Quote case studies, discuss examples where preparedness for disasters have proved to be a solution.

Conclusion

Conclude with way forward.

Introduction:

In an unnerving reminder of last year's devastating floods, **Kerala's** worst in about 100 years, incessant precipitation has deluged many districts, causing havoc, snapping communication lines and claiming several lives. Rains have battered **Karnataka and Maharashtra**, too, leaving many dead and several missing. Meanwhile, dramatic visuals from **Madhya Pradesh, Rajasthan and Gujarat** have revealed widespread distress. Parts of **Bihar and Assam** are also reeling under torrential rainfall, with a large number of people left battling grim circumstances.

Body:

Factors causing floods:

- **More than average rainfall:**
 - India's western coast has received above-average rainfall on account of sustained low-pressure conditions.
- **Land use:**
 - Injudicious use of land is responsible for making states more prone to floods and landslides.
 - However, other factors such as a change in land use patterns and climate change could have contributed to the situation on the ground.
- **Deforestation:**
 - Unfettered development activity had increased the chances of landslides, a major cause of casualties during the floods.
- **Wetlands** have been lost to development projects, construction of roads, and buildings at places too close to rivers.
- Other issues mentioned such as **encroachment and unplanned construction** are self-evident priorities when development is viewed using the lens of climate-resilient water management (CRWM).
- **Mismanagement of dams:**
 - For dams to truly tame floods, experts say dam reservoirs need to be relatively empty before the onset of rain. This was not the case in many states.
 - Local officials have been blamed for exacerbating the situation by failing to gradually open the dams dotting the state's complex river network, waiting instead until they were already full before unleashing the excess water.
 - More flooding was caused by emergency releases from dams that were full. Despite forecasts of more rain, there were no controlled releases.

- **World Bank analysis** while preparing the National Hydrology Project (NHP) in 2015 showed that although weather forecasts are more accurate now, dam managers (especially bureaucrats) are reluctant to authorise advance controlled releases.
- **Roads, railway lines and housing colonies** being laid and built without regard for natural water ways, but with formal planning permission.
- The State Department of Inland Waterways focuses on large waterways while district and local panchayats have no mandate or interest in maintaining these to reduce flood risk.
- The State Disaster Management Agency also ignores them.
- Despite India being a signatory to the UN's Sendai Framework for Disaster Risk Reduction, little has changed on the ground.
- Most modern cities have elaborate flood management plans .But India cannot even protect known flood-plains, tank foreshores and lakes peripheries from encroachment and illegal construction.

Current Flood management programmes in India:

- **Flood Management Programme (FMP)** during XII Plan for providing central assistance to States to the extent of Rs. 10,000 crore for taking up works related to river management, flood control, anti-erosion, drainage development, flood proofing works, restoration of damaged flood management works, anti-sea erosion and catchment area treatment.
- **Flood forecasting** has been recognized as one of the most important, reliable and cost-effective non-structural measures for flood management. Recognizing the crucial role it can play, Central Water Commission, Ministry of Water Resources has set up a network of forecasting stations covering all important flood prone interstate rivers.
- **Flood Management and Border Areas Programme (FMBAP):** The aim of the Scheme is to assist the State Governments to provide reasonable degree of protection against floods in critical areas by adopting optimum combination of structural and non-structural measures and enhancing capabilities of State/ Central Government officials in related fields.
- **Deploying relief and rescue operations like National Disaster Response Force, State Disaster Response Force and Seema Sashastra Bal** to mitigate the disaster caused by floods.

Measures needed:

- **Jal Shakti ministry** needs to boost water storage and attendant catchment area flood management works not just nationally but beyond the nation's borders as well. Due to **technological upgradation** the meteorology experts have of late been predicting monsoon and other weather conditions with near perfection.
- Efforts made by the Centre and the state governments to check deforestation should be intensified. The tree plantation drives at all levels are steps in the right direction.

- Cleaning of drains and rivulets near the cities should be accorded top priority.
- Construction of embankments, flood walls, ring bunds, flood control reservoirs should be scientifically carried on.
- Improvement of river channels and surface drainage and most importantly checking erosion of land on river banks are other measures that could help checking the spread of flood.
- Advance town planning and yearly preparations should be done to mitigate the effects of urban planning.
- Flood control as a subject has no clear-cut legislative marking. As a subject it is not included in any of the legislative lists of the country that is the Union, the State or the Concurrent lists.
- **River-basin specific flood inundation modelling** with climate change simulations is a necessary first step to understand the full impact of potential unprecedented flooding. This includes worst-case scenarios such as twice the maximum historical rainfall, as was recently done by a Department for International Development, U.K.-supported project for the Mahanadi in Chhattisgarh.
- The **local community to co-manage water resources** with the government (by planning intermediate storage, drainage and emergency responses).
- There must be **massive awareness generation**, to ensure that buildings are not extended into river floodplains, that road culverts let storm water through without hindrance, and that excess water is not blocked but allowed to saturate the soil strata so that it does not cause mudslides
- Need to **use the best-available information for decision-making**. This means improved hydromet systems and weather forecasts, robust modelling of catchment water flows with simulations of different climate-related scenarios, international norms for safety factors and building codes.
- Flood control can be made effective through an **Integrated Dam Management System**, which is totally computerised and automated, the only exception being lifting and lowering of shutters which has to be done manually.

Conclusion:

Given the perils upon us, India has little option but to pay special attention to its institutional capacity for disaster mitigation and relief, the nodal agencies for which need to be kept well-funded. How well a country mobilizes resources to tackle disasters, natural or otherwise, is a sign of how advanced it really is. India has made progress, but our efforts need to be stepped up.

The Jal Jeevan Mission will be a major step towards improving our people's ease of living and meeting their aspirations of a New India. Analyse.(250 words)

[Indianexpress](#)

Why this question:

On August 15, during the first Independence Day speech of his second tenure, Prime Minister Narendra Modi announced the Jal Jeevan Mission, which plans to supply water to all households by 2024.

Key demand of the question:

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Brief on the concept of Jal Jeevan Mission.

Body:

Discuss the key features of the Jal Jeevan Mission

Mission Objective: To ensure Har Ghar Jal (piped water supply) to all rural households by 2024 under the Jal Jeevan Mission.

Executing agency: Department of Drinking Water and Sanitation under the Jal Shakti Mantralaya.

Strategy: This Mission will focus on integrated demand and supply side management of water at the local level, including creation of local infrastructure for source sustainability like rainwater harvesting, groundwater recharge and management of household wastewater for reuse in agriculture.

The Mission will converge with other Central and State Government Schemes to achieve its objectives of sustainable water supply management across the country.

Conclusion:

Conclude with in what way Jal Jeevan Mission will be a major step towards improving ease of living and meeting aspirations of a New India.

Introduction:

The Prime Minister in the Independence Day speech announced the **Jal Jeevan Mission**, which plans to **supply water to all households by 2024**. It will be a **decentralised, community-managed and sustainable water management scheme**.

Body:



Objectives:

- This Mission will focus on **integrated demand and supply side management of water at the local level**, including **creation of local infrastructure** for source sustainability like rainwater harvesting, groundwater recharge and management of household wastewater for reuse in agriculture.
- The Mission will **converge with other Central and State Government Schemes** to achieve its objectives of sustainable water supply management across the country.

Current Scenario of water supply in rural areas:

- For many years, the central and state governments have been making efforts to increase access to safe and adequate drinking water.
- The provision of a basic quantity of drinking water in rural India has been achieved through hand pumps, dug wells, household water supply (HWS), etc.
- Thus, while states like Sikkim managed to achieve high levels of HWS, a relatively low percentage of rural Indian households have access to this.

Challenges faced:

- In rural drinking water service delivery, there is inadequate attention given to taking measures to sustain the source of the water, in most cases groundwater is a challenge.
- This proposed mission will make source sustainability measures mandatory prior to pumping and distributing water to households.
- Another issue with the traditional approach to service delivery was that the provision of drinking water was viewed primarily as an engineering solution, with schemes being planned and executed by the public health and engineering departments.
- However, water is an ideal sector for the applicability of the principle of subsidiarity, performing only those tasks which cannot be performed effectively at a more immediate or local level.

Jal Jeevan mission – a solution:

- With adequate capacity building and training, water can be most efficiently managed at the lowest appropriate level.
- Adopting this principle, the Jal Jeevan Mission's first preference will be to have **community-managed single village ground water-based schemes**, wherever sufficient quantity and good quality of groundwater exists.
- Wherever adequate quantity of safe groundwater is not present, or where it may be technically not feasible to have **single-village schemes**, **surface water-based multi-village schemes** will be promoted.

- Further, in some remote regions, where it may not be techno-economically feasible to have **household water supply schemes, local innovations, such as solar-based schemes** will be encouraged.
- It is not commonly known that household waste water from HWS amounts to about 75% of the amount of water supplied.
- With the rural households to get HWS under the proposed mission, huge quantities of household waste water will be generated across the country, therefore making its effective management critical.
- There is a plan to include a mandatory provision under the mission for the effective channelling and treatment of household waste water, through appropriate and low cost drainage and treatment systems.
- Once appropriately treated, this waste water can be used for both recharge of groundwater as well as for irrigation purposes.

Way forward:

- An **extensive information, education and communication** will be needed to create a people's movement for water management.
- The **ongoing Jal Shakti Abhiyan** will help in creating awareness about the importance of integrating source sustainability and water reuse.
- This **integrated approach to decentralised, community managed, and sustainable water** management is the backbone of the government's plan to ensure that every household gets the benefits of water supply.

Conclusion:

The Jal Jeevan Mission will be a major step towards improving our people's ease of living and meeting their aspirations of a New India.

India has reached a long way in reducing plastic waste but a lot more needs to be done yet.
Elucidate.(250 words)

[Downtoearth](#)

Why this question:

In response to Prime Minister's call on India's 73rd Independence day, to make India free of single use plastics, a massive public campaign will be launched engaging all stakeholders.

Key demand of the question:

The answer must evaluate the need for reducing plastic waste in the country.

Directive:

***Elucidate** – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.*

Structure of the answer:

Introduction:

State few facts depicting plastic pollution scenario in the country.

Body:

Discussion should include the following:

Explain first the past and present India's efforts to beat plastic pollution.

How far has the country gone?

Discuss why the steps aren't alone enough to tackle the menace and what more needs to be done.

Conclusion:

Conclude with way forward.

Introduction:

The Prime Minister delivering his 2019 Independence Day speech at Red Fort, pitched for freedom for India from single-use plastic. This was the incumbent government's second strong position against single-use plastic. The then Union minister for environment, forest and climate change, said on World Environment Day 2018 (June 5) that the country would try to "phase out" single-use plastic by 2022.

Body:

India's efforts towards reducing plastic waste:

- The **Plastic Waste Management (PWM) Rules 2011**, introduced under the Environment Protection Act, 1986, established a framework that assigned responsibilities for plastic waste management to the urban local body (ULB) and set up a state level monitoring committee.
- The 2011 rules were succeeded by the **PWM Rules 2016**, which tightened the rules (for example, banning plastic bags of less than 50 microns thickness), and also lay the foundation for accountability across the value-chain.
- The new rules **require producers and brand-owners to devise a plan** in consultation with the **local bodies to introduce a collect-back system**.
- The **extended producers' responsibility (EPR)** would assist the municipalities in tackling the plastic waste issue.
- The rules also state that the manufacture and use of multi-layered plastics that are hard to recycle must be phased out.
- Under the Good and Service Tax (GST), plastic waste was put under a 5 per cent bracket, hurting the informal sector, which already lacks a concrete action plan.
- **Latest amendments to plastic management rules 2016:**
 - Rule 15 (Explicit pricing of carrying bags) has been omitted in the amendment. It earlier required every vendor, who sold commodities in a carry bag, to register with their respective urban local body and pay a minimum fee of Rs 48,000 annum (4000/month) after the announcement of the bye-laws.
 - Other minor amendments include the addition of two more definitions: one on 'alternate use' and one on 'energy recovery'.

- The section 13 (2) now requires all brand owners and producers to register or renew registration with the concerned State Pollution Control Board (SPCB) or Pollution Control Committee if operational only in one or two states or union territories.
- They have to do the same with the Central Pollution Control Board (CPCB), if the producers/brand owners are operating in more than two states or union territories.
- Some states like Telangana, Maharashtra, Tamil Nadu, and Himachal Pradesh banned plastic bottles and Tetra packs, single-use straws, plastic/Styrofoam tea cups/containers, etc. But many like Bihar banned only polythene bags.
- The most detrimental single-use plastics are multi-layered sachets for packing products like tobacco. The Plastic Management Waste 2016 rules prohibit their use for storing and selling gutka / tobacco and paan Masala.

Shortcomings in the efforts:

- There is **no central and comprehensive definition for single-use plastic**, crucial for any ban to be successful. Governments currently use various definitions.
- The Plastic Management Waste 2016 rules are hardly enforced. Implementation of the rules has been poor in all aspects and the amendment says nothing to strengthen it.
- Packaging for snacks like chips and fries, chocolates, beverages, etc are equally harmful. These ubiquitous packages are not recycled.
- Section 9 (3) of the latest amendment to plastic management rules 2016 gives plastic producers a scope to argue that their products can be put to some other use, if not recycled.
- This move tantamount to revoking a complete ban, which it had implied earlier.
- This type of plastic was supposed to be banned by March 2018, but it is nowhere near a phase-out.
- The idea of extended producer responsibility (EPR), which was introduced in the rules of 2016, still remains nowhere close to being implemented even after two years.
- EPR targets have to be accounted for at the national level, irrespective of which state the products are sold or consumed in. The amendment does not address these issues. Moreover, no example of deposit refund scheme system has been implemented in any state.
- Lack of adequate infrastructure for segregation and collection is the key reason for inefficient plastic waste disposal.
- Most municipal corporations still do not have a proper system of collection and segregation, given their lack of access to technology and infrastructure, which are needed to dispose of plastic waste in a cost- and resource-efficient way.

- The Solid Waste Management Rules, 2016, mandate ULBs to set up facilities for processing sorted dry waste. However, the implementation has been rather bleak, owing to available land/space concerns.
- Source separation of waste, coupled with segregated collection and transportation, has been weak links in the waste supply.
- Imposing penalties or fines is easier said than done in a democratic setup.
- Plastic in oceans and forests are choking flora and fauna. In fact, plastic trash is expected to exceed the fish population in 2050.
- Microplastics has ability to enter food chain with the highest concentration of the pollutants

Way forward:

- ULBs could take a cue from cities like Bangalore where dry waste collection centres have not only been established but also have a self-sustainable business model.
- Municipalities must develop waste collection plans, coupled with outreach activities, to sensitise citizens on waste segregation.
- It is imperative to develop a phase-wise implementation of the EPR programme with yearly targets and a system of nationwide offsets and credit to ensure effective implementation of the rules.
- **International best practices:**
 - The success of imposing a plastic bag fee has also been established in cities like Chicago and Washington, showing that such interventions could be effective in shaping behaviour change.
 - The European Union is mulling new laws to ban some everyday single-use plastic products including straws, cutlery and plates citing plastic litter in oceans as the concern prompting the action.
 - **Encouraging plogging:** Picking up litter while jogging or strolling was kick-started on a small scale in a small part of Stockholm about a year ago, it has spread across the globe and India can adopt this as well.
 - Countries such as the U.S., Canada and the Netherlands have already put in place regulations to stop the use of microbeads in personal-care products. The sooner India adopts such regulations, the better
- Recycling has to ensure that wastes are converted into products of the same quality, if not better, compared to the original product.
- **Stop using single use plastic:**

- The Government of the state of Maharashtra has announced an ambitious ban of plastic bags, water bottles and other disposable plastic items in the state after the state civic bodies started facing serious problems on garbage disposing and its management.
- Fine for violating the ban will be Rs 5,000 for the first offence, Rs 10,000 for the second and Rs 25,000 for the third offence or a three-month jail term or both.
- With a worldwide crisis due to plastic waste, India has to involve all the stakeholders take the responsibility of ensuring minimisation, reuse and recycling of plastic to the maximum.
- Sensitise people to stop littering and segregate their waste. Nowadays the most popular eco-conscious effort is participating in beach cleanups.
- Sanitary napkins made from biodegradable material, menstrual cups should be promoted.

Indian Monsoon's increasing unpredictability calls for greater efficiency in rainwater storage and use. Do you agree? Elucidate with suitable justifications. (250 words)

Indianexpress

Why this question:

The article discusses the urgency of focusing on storage and use of rainwater efficiently to address the water crisis facing the country.

Key demand of the question:

The answer must relate the unpredictability of the Indian monsoon and relevance of rainwater storage and use.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Describe the recent unpredictable nature of Indian Monsoons.

Body:

The answer must explain the issue of Indian monsoon – fewer rainy days and more extreme precipitation, explain its impact on agriculture etc.

Discuss the monsoonal vagaries and how it has impacted the Indian economy and life.

Take hints from the article and debate over and form a balanced opinion and justify with examples the urgent need to press on storage and harvest of rainwater.

Conclusion:

Conclude with importance of conserving water.

Introduction:

It is said that “agriculture is the backbone of Indian economy.” To an agriculturist, water is more valuable. In many ways, the monsoon is the lifeblood of India's farm-dependent economy. The Monsoon's increasing unpredictability calls for greater efficiency in rainwater storage and use.

Body:

Unpredictability of Monsoon in India:

- In **June**, rainfall was **8 per cent deficient on an average** across India and the prospect of a monsoon failure loomed large.
- And with the dry spell extending from September in many parts, the return of food inflation, it seemed, would present the re-elected government with its first big challenge.
- But in **July**, the rains turned out **6 per cent more than the average**.
- In this month, till August 17, they have been a **whopping 34.9 per cent above normal**.
- As a result, cumulative rainfall for the southwest monsoon season (June-September), which was **almost one-third deficit till June-end**, has now become **9 per cent surplus**.
- Such a dramatic turnaround is, perhaps, unprecedented.
- The current revival has also helped substantially close the gap in kharif crop plantings: Till July 5, the total area sown by farmers was 26.7 per cent lower than last year's corresponding coverage.
- That has since narrowed to just 5.3 per cent, which should considerably assuage food inflation fears.

The monsoon's increasing unpredictability, with fewer rainy days and more extreme precipitation. For the farmer, this is a nightmare. When the rains don't come on time, pour when they do, or take extended breaks, it disrupts the entire cropping cycle from the sowing, vegetative and reproductive growth stage right up to harvesting. Agriculture is a gamble in the best of times; but now it becomes a game of pure chance embodying risk as well as uncertainty. And blaming it all on climate change is hardly helpful.

Rainwater harvest and storage – a potential solution:

- India has some 107 major reservoirs with over 166 billion cubic meters' active storage capacity.
- A time-bound programme for lining of irrigation channels — or even better, replacing all open canals with pressurised HDPE/PVC piped distribution networks — will enable the water filled in these dams during the monsoon to be used for a longer period.
- The same water can be further conveyed to farmers' fields through drip/sprinkler irrigation.
- Harvesting of rainwater, whether in large reservoirs or farm ponds, and which can take place any time during the monsoon season, will give farmers greater flexibility in their cropping operations.

Challenges in the above approach:

- **Dam safety issues:** Most dams are old and pose grave threat to the people living downstream.
- **Evaporation:** India has more than 300 sunny days and reservoir storage can lead to evaporation.
- **Issues with states:** The storage of water in reservoirs in one state can lead to shortage of water in other states leading to tussle between states.

- **Lack of education:** Huge storage levels could lead to reckless usage of water

Thus, only water storage is not the panacea. There is need for other measures too:

- In rainfed areas, **water security** primarily depends upon rainwater harvesting and the efficient use of the available water through techniques like drip irrigation, and the appropriate choice of farming systems.
- **Groundwater augmentation and management** is an important method of ensuring adequate and timely availability of water for crops. Fortunately, the concept of 'more crop per drop' is being promoted by the government.
- The government must resolve to address the structural issues and there is a need to give farmers not just a better, but also more stable, return on their crops.
- The monsoon-dependent Indian economy needs **climate-sensitive budgeting**.
- The excessive dependence on monsoon may be mitigated by the construction of modern irrigation canals, afforestation, and diversification of Indian industries.
- Farmers, especially smallholder farmers, need advance warning of emergent weather conditions at a local level.
- Develop **climate-smart agriculture practices**.
- Build adaptive capacities to climate variability and strengthen the sustainability of farming systems.
- Preventive measures for drought that include growing of pulses and oilseeds instead of rice.
- **Mobile telecommunication systems** are increasingly cost-effective and an efficient way of delivering weather-based agro-advisories to farmers at a large scale.
- **Allied agricultural practices like Agroforestry, Apiary, Fisheries, Animal husbandry** should be promoted which can act as economic alternative in times of Monsoon failure.

In the recent times Microplastics evidently have compelling populace to look at plastics in a different way. Critically examine.(250 words)

[Indianexpress](#)

Why this question:

The question is based on the theme of microplastics.

Key demand of the question:

The answer must capture in what way the menace of microplastics has alarmed the people across the world and compelled to rethink over the use of plastics.

Directive:

Critically examine – When asked to 'Examine', we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

Begin with definition of what are microplastics.

Body:

Discussion should include the following:

Microplastics, which are defined as shreds of plastic less than 5 mm in length.

A study published in June estimated that the average human ends up consuming at least 50,000 particles of microplastics in food every year.

Quote facts similar to the above to justify the urgency to acknowledge the menace posed by the microplastics.

Explain in what way the use of microplastics can disrupt life.

Discuss what needs to be done to tackle the problem.

Conclusion:

Conclude with way solutions to address the issues.

Introduction:

Microplastics are small plastic particles in the environment that are **generally smaller than 1mm down to the micrometer range**. The researchers found huge amounts of them in the Arctic snow; their study claims to be the first that contains data on contamination of snow by microplastics.

Body:

Microfibres from washing of textiles, microbeads used in cosmetics and even paint from land run-offs can dump microplastics in the ocean. Plastic bottles, bags, fishing nets, and food packaging are some examples of the larger pieces that break down into microplastics, eventually finding their way into the soil, water and the air we breathe. According to a **2017 International Union for Conservation of Nature (IUCN) report**, microplastics are estimated to constitute up to **30% of marine litter polluting the oceans**.

Concerns posed by Microplastics:

- Microplastics escape the filtration and treatment processes for waste water and end up in sites of nature.
- This is resulting in significant global impacts on wildlife from marine environment pollution.
- Microplastics are killing the fish before they reach reproductive age, stunted growth and altering the behaviour in some fishes.
- Microplastics are found in the viscera of dead sea birds, reptiles like turtles, whales etc.
- World's coastal countries currently do not have the concerned recycling policies or the technical capabilities, and so large quantities of plastic are not recycled and enter landfill.
- The durable properties of plastics make them persistent and slow to degrade in the environment entering the food chains.
- It holds the potential for both bioaccumulation and biomagnification.
- Once the microplastics enter foodchain, they carry synthetic chemical compounds such as PCBs and PAHs, which are carcinogenic.

- Unlike POPs (Persistent Organic Pollutants) or chlorofluorocarbons (CFCs), Plastic pollution has received little attention in terms of international agreements.
- **Microplastics make up 94 percent** of an estimated 1.8 trillion pieces of plastic in the patch. But that only amounts to eight percent of the total tonnage

Measures needed:

- Local actions are required for mitigating plastic pollution, using mechanisms such as bans on plastic bags, maximum daily limits for emissions into watersheds, and incentives for fishing gear retrieval.
- Microbeads in cosmetics, daily use items must be banned globally.
- Countries should come together to establish measurable reduction targets for plastic waste. A meaningful international agreement—one with clearly defined waste reduction targets is the need of the hour.
- Effective policies must take into account all stages of the lifecycle of plastic—connecting producers to users and ultimately to waste managers.
- Nonprofits like 5 Gyres are now pushing an agenda toward public awareness, corporate responsibility and the idea of a circular economy — an economy that focuses on keeping waste to a minimum while maximizing materials' use.
- Fossil fuel subsidies incentivise the plastic market. Hence, Countries should end fossil fuel subsidies. Annually, 4–8% of oil is used to produce raw plastic.
- India has a major problem dealing with plastics, particularly single-use shopping bags that reach dumping sites, rivers and wetlands along with other waste.
- The most efficient way to deal with the pollution is to control the production and distribution of plastics.
- Banning single-use bags and making consumers pay a significant amount for the more durable ones is a feasible solution.
- Enforcing segregation of waste will retrieve materials and greatly reduce the burden on the environment.
- Waste separation can be achieved in partnership with the community, and presents a major employment opportunity.
- Eco-friendly substitutes (cloth/paper/jute bags, leaves/areca leaf plates, paper straws) should be developed. For this, scientific and financial support (soft loans and subsidies) is required.

Conclusion:

Marine plastic pollution is a “planetary crisis,” and we should hope for a “Paris-style” global treaty aimed at tackling it. We cannot transform our world into a ‘plastic planet’. What is needed is collective public effort to stop plastic pollution and safeguard our ecosystem/biodiversity.

Man-made fires in the Amazon rainforest have sent smoke to populated cities and the Atlantic coast. Why does it bring focus on President Bolsonaro’s policies? What impact can it have on the environment? Critically analyse. (250 words)

Indianexpress

Why this question:

The question is in the context of recent forest fires witnessed by the Amazon forests.

Key demand of the question:

The answer must evaluate the underlying causes for the forest fires and the impact it can have on the environment.

Directive:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

First explain in short what are forest fires.

Body:

The article best explains the causes owing to which the Amazon forests are facing forest fires. One must explain the significance that these rainforests hold for the health of the world environment.

Explain the recent policies of the President Bolsonaro that have led to such alarming conditions that may become irreversible if policies are not put in place to conserve the forests.

Explain what needs to be done

Conclusion:

Conclude with way ahead.

Introduction:

The Amazon rainforest, covering much of northwestern Brazil and extending into Colombia, Peru and other South American countries, is the world’s largest tropical rainforest, famed for its biodiversity. The Amazon rainforests also called the ‘lungs of the earth’ account for **10% of the world’s terrestrial primary productivity** and serves as a **major carbon sink for nearly 20% of the total emissions**. Climate change, largely induced by increasing anthropogenic activity is instrumental in the rapid degradation of these forests.

Body:

Effects of Policies:

- Over the last several days, the Amazon rainforest has been burning at a rate that has alarmed environmentalists and governments worldwide.
- Mostly caused by farmers clearing land, the fires have thrown the spotlight on Brazil President Jair Bolsonaro’s policies and anti-environment stance.

- The environmentalists are blaming Brazilian President Jair Bolsonaro for the forest fires.
- When Bolsonaro was running for president, he had promised to restore Brazil's economy by exploring the economic potential of the Amazon rainforest.
- As per environmentalists, Bolsonaro has encouraged the farmers and ranchers to exploit and burn the rainforest like never before.
- According to the data from Brazil's National Institute for Space Research (INPE), the Amazon Forests in Brazil has experienced **74,155 fires since January 2019**.
- Amazon deforestation began in earnest in the 1970s, reaching its peak rate at the end of the 1990s and the start of the 2000s.
- In 2004, about 28,000 square km of forest had been cleared in Brazil alone (the Amazon spreads over nine countries, but 60 per cent of the rainforest is in Brazil).
- The thousands of fires burning in the Amazon don't look like the major forest fires of Europe or North America — instead, they are fuelled mainly by branches, vegetation and other by-products of deforestation in cleared areas.

Impact on Environment:

- The Amazon rainforest is a repository of rich biodiversity and produces approximately 20% of oxygen in the Earth's atmosphere.
- It is home to many indigenous communities, their life depends on the forests.
- Additional Carbon Emissions: Carbon intake by the Amazon basin matches the emissions released by nations in the basin. The burning of forests, therefore, implies additional carbon emissions.
- Further deforestation could lead to Amazon's transformation from the world's largest rainforest to a savannah, which would reverse the region's ecology.
- Savannah is a vegetation type that grows under hot, seasonally dry climatic conditions and is characterized by an open tree canopy (i.e., scattered trees) above a continuous tall grass understory (the vegetation layer between the forest canopy and the ground).
- The largest areas of savannah are found in Africa, South America, Australia, India, Myanmar (Burma)–Thailand region in Asia, and Madagascar.
- Impact on Water Cycle: Amazon rainforest has the ability to produce at least half of the rain it receives. The rain produced by the Amazon travels through the region and even reaches the Andes mountain range.

Measures needed:

- Reduce the use of wood and wood by-products in daily life to save trees and earth

- The government in the concerned countries should take measures to stop slash and burn agriculture
- Forest fires can be reduced if farmers reduce the burning of stubble in the area

Conclusion:

Amazon rainforests are unique and irreplaceable units. Its destruction is worrisome because it affects the lifeblood for entire Amazon region, we all should strive for protecting the rainforests in our best capability.

Beyond health costs, air pollution can also hurt the economy in other ways. Elucidate in the backdrop of alarming air pollution issue in the country.(250 words)

Livemint

Why this question:

The article provides for a detailed coverage of the ongoing air pollution crisis the country is witnessing.

Key demand of the question:

One must elaborate as to how the problem of pollution no more is only about the health but is also about the cost it bears on the economy in multiple other ways.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In short define air pollution, explain with facts how it affects in multiple fronts.

Body:

Explain that Beyond health costs, air pollution can also hurt the economy in other ways. In a 2018 study, Jamie Hansen-Lewis of Brown University finds that air pollution hurts productivity in India's labor-intensive industries.

It estimates that bringing the country's air to global standards would lead to a small increase in profits of 0.3% across manufacturing companies with more pronounced effects in labor-intensive firms.

Similarly, pollution is also hurting agriculture by stifling crop productivity. One 2014 study estimated that air pollutants were responsible for 19% of the loss in yields in wheat production in India in 2010.

Discuss that air pollution is also linked inextricably to climate change. Some of the same particles that clog up the lungs can clog up the atmosphere and contribute to the changing weather patterns.

Suggest solutions to tackle the problems.

Conclusion:

Conclude that India's air pollution policy needs to be more systematic and solutions need to be put in place with a multi-pronged approach.

Introduction:

According to WHO, of the 20 most polluted cities in the world, the top 14 are Indian cities. The problem of air pollution disrupts not only the NCR area but many other prominent urban areas like Allahabad and Ludhiana which figure above Delhi in the pollution ranking across the world. In India, air pollution is the third highest cause of death among all health risks, ranking just above smoking.

Body:

Impact of air pollution on the economy:

- Beyond health costs, air pollution can also hurt the economy in other ways.
- According to a report by the **United Nations Environment Programme (UNEP)**, India had the highest share of welfare costs (or a loss of income from labour), of about \$220 billion (about ₹1.4 trillion), in South and South-East Asia of a combined total of \$380 billion from mortality due to air pollution.
- In addition to human lives lost, there's an estimated global cost of \$225 billion in lost labour, and trillions in medical costs, Greenpeace report says.
- Government is keen to ascend the World Bank's "ease of doing business" chart, but images of people walking around Delhi in safety masks do little to attract investment.
- In a 2018 study, Jamie Hansen-Lewis of Brown University finds that air pollution **hurts productivity** in India's labour-intensive industries.
- She estimates that bringing the country's air to global standards would lead to a small increase in profits of 0.3% across manufacturing companies with more pronounced effects in labour-intensive firms. Similarly, pollution is also hurting agriculture by stifling crop productivity.
- A 2014 study estimated that air pollutants were responsible for 19% of the loss in yields in wheat production in India in 2010.

Government efforts in dealing with air pollution:

- The government acknowledged air pollution as a pan-India problem with the drafting of the **National Clean Air Programme (NCAP)**, which was intended to build and strengthen the institutional capacity to monitor air quality across India, carry out indigenous studies to understand the health impacts of air pollution and create a national emission inventory.
- Banning the use of private vehicles from November 1 onwards in Delhi, although drastic, will definitely not be enough to curb pollution.
- **Odd-even schemes** and, recently, the allowance by the Supreme Court (SC) for only green or zero-emission firecrackers, are the episodic measures that have been used, and still continue to be, to combat this methodical pollution.
- There have also been instances of **ban on construction activities**.
- States have got nearly Rs.650 crore to help farmers buy subsidised equipment such as **Happy Seeder, Paddy Straw Choppers and Zero Till Drill**.
- There is a **50% subsidy to farmers**, and a **75% waiver to cooperative societies, agencies** that rent out equipment, farmers' interest groups or gram panchayats to buy such machines.

Way forward:

- Short term measures should be accompanied by measures that **increase the forest cover** of the land and provide farmers with an alternative to burning the remains of their crops.
- An innovative approach could be to **use climate change funds to turn farm residues into a resource**, using technological options such as converting them into **biofuels** and **biofertilizers**.
- **Proactive engagements are necessary to persuade and reassure farmers.**
- It is important to find other uses for stubble such as biomass, which may encourage farmers to look for **alternative sources of income**.
- India should at least now give high importance to the **WHO warning about air pollution being the new tobacco**. Sharply escalated, deterrent parking fees can be implemented.
- From an urban development perspective, large cities should reorient their investments to **prioritise public transport, favouring electric mobility**.
- **Incentives** for adoption of **alternate mobility technologies** should be promoted.
- The **World Bank** has said it is keen to enhance its lending portfolio to tackle air pollution, opening a new avenue for this.
- Governments should make the **use of personal vehicles in cities less attractive** through **strict road pricing mechanisms** like **Congestion tax, Green-house Gas tax**
- Need to speed up the journey towards **LPG and solar-powered stoves**.
- **Addressing vehicular emissions** is within India's grasp but requires a multi-pronged approach. It needs to combine the already-proposed tighter emission norms (in form of BS VI), with a push for shared mobility and public transport and adoption of alternate mobility technologies.
- NCAP should take precedence from emerging practices in the country—**pollution cess in Delhi on truck entry, big diesel cars, and diesel fuel sales and the coal cess**—to generate dedicated funds to finance clean air action plan.
- **Tackle road dust** by **mechanised sweeping** and **water-sprinkling** but what would be more beneficial is if the sides of the roads could be paved or covered with grass that holds the soil together and stops the production of the dust in the first place.
- Attention to non-technological aspects such as **urban planning, to reduce driving, and to increase cycling, walking, and use of public transport** are needed.

In your opinion do you agree that grass-roots governance is the urgent call for safeguarding the bio-diversity of the Western Ghats region? Discuss.(250 words)

The hindu

Why this question:

The article highlights the significant arguments that were made by the Western Ghats Ecology Expert Panel (WGEEP) to preserve and conserve the ecology of the region.

Key demand of the question:

The answer must envisage upon the significance that grass root governance would hold in bringing in conservation and preservation of the ecology of the western Ghats to the forefront.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You must give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In short explain the significance of western Ghats and its ecology in general.

Body:

Explain first the importance of democratic devolution.

Discuss the need for full advantage of powers and responsibilities conferred on citizens under provisions such as the 73rd and 74th Amendments to the Constitution, and the Biological Diversity Act, 2002.

Discuss the need to assert that conservation prescriptions should not be merely regulatory, but include positive incentives such as conservation service charges.

Explain that we must hand over economic activities like quarrying to agencies like the Kudumbashree groups that are accountable to local communities.

Conclude with significance of grass root empowerment.

Conclusion:

Conclude with significance of grass root empowerment.

Introduction:

In 2018, many people thought that the floods and landslides in Kerala that caused huge financial losses and manifold human tragedies marked a once-in-a-century calamity. But again, in 2019, a repeat of the **shocking trail of intense floods, landslides, financial losses and manifold human tragedies** has not just left the same set of people stunned but also made them realise that it is unwise to continue business as usual, and that we must think afresh of the options before us.

Body:

The Western Ghats is a **biological treasure trove** that is endangered, and it needs to be “**protected and regenerated, indeed celebrated for its enormous wealth of endemic species and natural beauty**”.

Democratic devolution and Western Ghats:

- **Decentralized water management plans** to be developed at least for the next 20 years. Water resource management plans with **suitable watershed measures, afforestation, eco-restoration of catchments, rainwater recharging and harvesting, recycling and reuse** should be built into the plans.
- **Basin level management plans:** These water management plans should integrate into basin level management plans. The objective is to **reduce the dependence on rivers and external sources** and **to improve recharge**.
- **Encourage use of organic manures:** Self-help groups/ local entrepreneurs should be supported to set up units for the manufacture of organic farming material such as **good quality organic manure, oil cakes, and bio-fertilizers** so that good quality manure can be assured on time and reduces ground water pollution

- **Agro-biodiversity conservation with local participation:** A **participatory plant breeding and crop improvement programme** needs to be launched at the Panchayat level with farmers, including women, to restore traditional varieties and develop good varieties suitable for each locality. **Conserving locally adaptive varieties** may also become extremely relevant in the context of climate change
- **Legislations:** **Joint Forest Management (JFM), Extension of Panchayat Raj to Scheduled Areas (PESA), Protection of Plant Variety and Farmers' Rights Act (PPVRFA), Biological Diversity Act (BDA) and the Scheduled Tribes and other Traditional Forest Dwellers (Rights over the Forest) Act (FRA)** have conferred substantial rights over natural resources to local communities and governments should devolve the powers as mentioned in these acts.
- **Environmental Impact Assessment:** For mining within the Western Ghats, cumulative EIAs must be made mandatory rather than entertaining EIAs for individual leases in the same areas.
- **Sustainable energy generation:** **Micro and mini hydel projects** in eco sensitive areas in the Ghats should be designed more to meet local power demand and not to feed to the grids as power lines are needed to evacuate power from these plants
- **Transportation:** All future proposals for railway lines and roads should undergo a thorough environmental and wildlife impact assessment. There should be a **subcommittee (comprising all relevant stakeholders and local communities and tribes)** to assess the environmental and ecological impacts of constructing any transport infrastructure through rich forests, wildlife habitats and wildlife corridors.

Way forward:

- It is necessary to use this vast experience and existing policies to formulate and implement appropriate policies, including transfer of financial powers, and institutions to promote sustainable and participatory forestry under the emerging programmes and mechanisms.
- We should assert that conservation prescriptions should not be merely regulatory, but include positive incentives such as conservation service charges.
- We must hand over economic activities like quarrying to agencies like the **Kudumbasree groups** that are accountable to local communities.
- We must take full advantage of powers and responsibilities conferred on citizens under provisions such as the 73rd and 74th Amendments to the Constitution, and the Biological Diversity Act, 2002.
- We, the sovereign people, are the real rulers of India and must engage ourselves more actively in the governance of the country and lead it on to a path of people-friendly and nature-friendly development.

Case study: **Kerala – A leader in devolution:**

- *Kerala leads the country in democratic devolution.*

- The Kerala High Court had ruled in favour of Plachimada Panchayat that cancelled Coca-Cola's licence because the company polluted and depleted groundwater reserves, drying up wells and adversely impacting agriculture and livelihoods.
- While doing so, the panchayat invoked its constitutional rights, arguing that it had the duty to protect the well-being of its citizens and had the right to cancel — or refuse permission for — anything that affected its citizens adversely.
- The company's counterargument was that the panchayat was subordinate to the State government, which had granted it the licence.
- The Kerala High Court rejected this contention, affirming that grass-roots institutions have the authority to decide on the course of development in their own locality.
- Furthermore, the Kerala legislature unanimously passed a law asking Coca-Cola to pay Plachimada Panchayat due compensation for losses inflicted on them.
- Kerala had also been at the forefront of the country's Literacy Mission of the late 1980s; it pioneered Panchayat Level Resource Mapping involving neo-literates and followed it up with the People's Planning campaign that attempted to involve every panchayat in the preparation of a Panchayat Development Report

Disaster and disaster management.

“River linking projects for the country are a great challenge and at the same time an opportunity to address the water issues arising out of climate change.” Critically analyse the statement in the light of recent floods witnessed across the country.(250 words)

Reference

The Big Picture- floods and river linking

Why this question:

The debate captures in depth analysis of river linking projects for India and in what way they are a boon and a bane at the same time.

Demand of the question:

The answer must analyse in detail the pros and cons of the river interlinking projects in the backdrop of recent floods witnessed across the country.

Directive word:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction

Start with key facts depicting the uneven distribution of rains across the country.

Body

The interlinking project aims to link India's rivers by a network of reservoirs and canals that will allow for their water capacities to be shared and redistributed.

According to some, this is an engineered panacea that will reduce persistent floods in some parts and water shortages in other parts besides facilitating the generation of hydroelectricity for an increasingly power-hungry country.

Discuss in brief the history of interlinking projects in India.

Then explain the positives of such a policy.

Discuss the demerits – financial viability, physical viability, will adversely affect land, forests, biodiversity, rivers and the livelihood of millions of people etc.

Discuss examples of successes and failures and suggest what should be done.

Conclusion

Conclude with a fair and balanced opinion.

Introduction:

The river interlinking project aims **to link India's rivers by a network of reservoirs and canals that will allow for their water capacities to be shared and redistributed.** Some experts claim that this is an **engineered panacea** that will **reduce persistent floods in some parts and water shortages in other parts** besides facilitating the generation of hydroelectricity for an increasingly power hungry country.

Body:

Opportunities arising out of River linking projects:

- India receives most of its rain during monsoon season from June to September, most of it falls in northern and eastern part of India, the amount of rainfall in southern and western part are comparatively low. It will be these places which will have shortage of water. Interlinking of rivers will help these areas to have water throughout the year.
- This will cut farmers dependence on monsoon rains by bringing millions of hectares of cultivatable land under irrigation.
- Crop productivity would increase and so would revenues for the State.
- Even one bad monsoon has a direct and debilitating economic impact.
- The river linking project will ease the water shortages in western and southern India while mitigating the impacts of recurrent floods in eastern India.
- The Ganga Basin, Brahmaputra basin sees floods almost every year. In order to avoid this, the water from these areas has to be diverted to other areas where there is scarcity of water. This can be achieved by linking the rivers. There is a two way advantage with this – floods will be controlled and scarcity of water will be reduced.
- Simultaneous floods and droughts continue to wreak havoc, destroying the lives and livelihoods of millions.
- India needs clean energy to fuel its development processes, and river water can be leveraged for this.
- Fulfilling water needs impact socio-economic life of people which will help end poverty.
- Need for interlinking of rivers to prevent inter-state water disputes.

- Potential benefits to transportation through navigation, as well as broadening income sources in rural areas through fishing.

Challenges posed:

- The idea that river linking would allow us to cope with flood in the north east and shortage of water in the Deccan is the positive aspect as pointed earlier but misleading one too.
- This floods come at the time when most parts of the country run short of water, we need to hold the water somewhere to use it in dry season but the amount of flowing in the short period of time in Brahmaputra and Ganga is so huge to store and use it later.
- **Variability in rainfall** is high which is the main source in the country, flood and drought simultaneously within the states of Bihar and Maharashtra.
- Irrigation potential from interlinking rivers will have limited impact. The net national irrigated area from big dams has decreased and India's irrigated area has gone up primarily due to groundwater.
- Interlinking of rivers is a **very expensive proposal**. The amount required for these projects is so huge that government will have to take loans from the foreign sources which would increase the burden on the government and country will fall in a debt trap.
- The river interlinking project will **adversely affect land, forests, biodiversity, rivers and the livelihood of millions of people**.
- The Ken-Betwa link threatens about 200 sq. km of the Panna tiger reserve.
- Interlinking of rivers will lead to **destruction of forests, wetlands and local water bodies**, which are major groundwater recharge mechanisms.
- Less than positive experience that other countries have, like diversion of Amu Darya and the Syr Darya or the Australia's experiments in its Murray Darling basin.
- It causes massive **displacement of people**. Huge burden on the government to deal with the issue of rehabilitation of displaced people.
- Due to interlinking of rivers, there will be decrease in the amount of fresh water entering seas and this will cause a serious threat to the marine life.
- The Shah committee pointed out that the linking of rivers will affect natural supply of nutrients for agricultural lands through curtailing flooding of downstream areas.

Way forward:

- To look at water as a strategic resource for development.
- Environment is one issue where anyone of us should be concerned about.
- Best practices done by China and neighbouring countries needs to be looked upon.

- The biggest, cheapest, most benign, possibly fastest and most decentralized storage option for India is the groundwater
- Invest in water conservation, more efficient irrigation and better farm practices.
- Recycling of water for internal usage as that of Israel.
- We need a mandatory enforceable river policy aimed at treating rivers as national treasure.
- Accumulation of silt in huge quantities, particularly the Ganga and its tributaries. These rivers need to be desilted.
- River linking in the south and other parts which was undertaken in the past has been going well so such model needs to be taken forward.
- Planting trees on the river banks is one way of bringing life back to the rivers.
- Forest catchments will need to be restored, wastewater from industries and towns will need to be treated, sand mining need to be stopped.
- Need to build the responsibility, capability and accountability in our water management institutions to revive our rivers.
- The judicious use of canal water, growing crops that are appropriate to a region, encouraging drip irrigation and reviving traditional systems such as tanks.

Conclusion:

The river linking project is a great challenge and an opportunity to address the water issues arising out of climate change. The long-term solution to water scarcity lies in making the IRL project work by building a network of dams and canals across the length and breadth of the country. However, interlinking has to take place after a detailed study so that does not cause any problem to the environment or aquatic life.

The recent floods of catastrophic dimensions have ravaged many states in the country, don't you think this has proved the rejection of Gadgil panel report to be a costly error for people and environment? Critically analyse.(250 words)

Livemint

Why this question:

Gadgil panel report on rapid erosion of Western Ghats is back in focus amid floods.

Demand of the question:

The answer must analyse the key findings of the report and in what way the recommendations of the report were ignored and such an ignorance has actually led to intensification of the disasters marring the western Ghats.

Directive word:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When

'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction

Explain what is the issue.

Body

First explain what was Gadgil report all about? What were its key recommendations? Why was the report rejected and on what basis?

Then discuss its implications. Relate it to the current conditions of the western Ghats and associate it with the causative factors of the recent floods.

Conclusion

Conclude with solutions and way ahead.

Introduction:

The Centre constituted the 14-member **Western Ghats Ecology Expert Panel (WGEEP)** in 2010 under the chairmanship of noted **ecologist Madhav Gadgil**. It was tasked to look into **measures to arrest the ecological devastation from human activities in the Western Ghats**. The Gadgil panel report (2011) had **recommended controls on mineral extraction and mining**. It recommended **against building new large-scale dams and inter-basin diversions of rivers**.

Body:

Key recommendations:

- The Gadgil Committee divided the Western Ghats into **three ecologically sensitive zones (ESZ) the highest (ESZ1), high (ESZ2) and moderate sensitivity (ESZ3) zones**.
- This is in addition to the Protected Areas managed under acts such as the Wildlife Protection Act.
- It suggested that **ESZ1 and ESZ2 would be largely 'no-go' zones** implying mining, polluting industries as well as large-scale development activities, including new railway lines are restricted.
- It also objected to new dams, thermal power stations or massive windmill farms or new townships in ESZ1.
- The panel however gave **importance to the local communities and gram sabhas**, where they were given a larger say in deciding on matters relating to the ecology of these regions.
- **No more new hill stations, no change of land-use from forest to non-forest use, or public to private ownership and no more inter-basin diversions** of rivers in the Western Ghats
- It also called for **stricter regulation on tourism; phasing out of plastics and chemical fertilisers; a ban on diversion of forest land into non-forest applications; a ban on conversion of public lands into private lands**.

The Gadgil Panel report was rejected by the then Union Environment Minister and was also unacceptable to any of the six Western Ghats States. The recommendations, which have been ignored

by state governments, are back in focus as the states face monsoon fury with floods and landslides killing hundreds across Kerala, Karnataka and Maharashtra.

Implications of rejection of report:

- Most of the rivers in the Western Ghats are either dammed or diverted. West-flowing rivers have been virtually made into east-flowing rivers by violating all natural laws.
- Kerala has a total 5,924 quarries, an average of six quarries per panchayat, of which 3,332 are in the ecologically sensitive zones identified by Gadgil.
- The vibrations from these blasts are shaking the hills. **Sound waves go fastest in diamonds, and the next in granites.** The density variations arising out of quarrying are destroying millennia-old forests in the Western Ghats
- Most sites where landslides took place, in fact, fall into the zones which would otherwise have been marked ecologically sensitive, had the key recommendations of the report been adopted.
- Referring to the region, as the **“Protector of the Indian Peninsula”**, the report had raised alarm on the rapid erosion of natural capital for man-made capital in the Western Ghats, which has led to “excessive, unnecessary environmental damage”.
- Both the **Athirappally project in Kerala and Gundia hydel project in Karnataka** fall in ESZ1 zone, these projects should not be accorded environmental clearance.
- There is **premature silting up of reservoirs** due to the massive encroachment and deforestation of catchments consequent to dam construction. **Idukki dam** is a classic case wherein the entire catchment was encroached along with dam construction
- The large-scale shift to cultivation of soil-eroding monoculture plantations of tea, coffee, cardamom, rubber, banana, pineapple and timber on steep slopes, leading to increased surface run-off and low seepage deep into the soil.
- Land-use changes mapped by Kerala Forest Research Institute shows Wayanad has lost a forest cover of 1086 square km, an area larger than all of Delhi.
- The fragmentation of forests is also reflected in human-animal conflict that has been on a rise.
- Wayanad has also witnessed a change in temperature of 2-3 degrees, that otherwise happens over centuries, over a short span of years

Way forward:

- The Western Ghats States need to reconsider their stand in view of the recent calamity.
- The “environment vs development and livelihoods” debate should not be used to shield vested interests.
- **A different governance regime**, as suggested by the Gadgil panel, may be required to administer the Western Ghats.

- However, Kasturirangan panel's observation that results are better achieved through incentives than policing is valid.
- Indeed, the challenge is to set up decentralised, participatory institutions to manage hilly regions and river basins.
- The Centre should urge the States to accept the best in both the reports.
- It should not entertain any further reduction of ecologically sensitive areas, for nature's and hence people's sake.

Conclusion:

A policy shift is urgently warranted curtailing the environmentally disastrous practices and switching over to a more sustainable farming approach in the Western Ghats. **Decommissioning of dams and thermal projects** that have crossed their viable life span of 30-50 years in a phased manner is need of the hour.

In the backdrop of recent floods that deluged most parts of the country, don't you think the water footprint needs to be reinstated, and the relationship with water resources rebuilt to face a future of changing weather patterns? Elucidate.(250 words)

The hindu

Why this question:

The article captures the policy level lacunae and the lack of proper planning with respect to existing water resources that has led to the current conditions of floods in the country.

Key demand of the question:

The answer must discuss and detail upon need of conscious efforts in terms of planning and effective ways to rebuild the relationship with the water resources.

Directive:

***Elucidate** – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.*

Structure of the answer:

Introduction:

Describe the current flood situation being witnessed across the country.

Body:

The answer must discuss in detail the issue – causes of the flood situation; Large-scale urbanization, Dilution of laws, lack of planning etc.

Then discuss what should be done essentially to overcome the problem, take clues from the article and detail on the aspects that need focus.

Conclusion:

Conclude with way ahead.

Introduction:

In an unnerving reminder of last year's devastating floods, **Kerala's** worst in about 100 years, incessant precipitation has deluged many districts, causing havoc, snapping communication lines and claiming several lives. Rains have battered **Karnataka and Maharashtra**, too, leaving many dead and several missing. Meanwhile, dramatic visuals from **Madhya Pradesh, Rajasthan and Gujarat** have revealed

widespread distress. Parts of **Bihar and Assam** are also reeling under torrential rainfall, with a large number of people left battling grim circumstances.

Body:

The water footprint is a measure of humanity's appropriation of fresh water in volumes of water consumed and/or polluted. It helps us understand for what purposes our limited freshwater resources are being consumed and polluted.

Factors causing floods:

Natural factors:

- **More than average rainfall:**

- India's western coast has received above-average rainfall on account of sustained low-pressure conditions.

Anthropogenic factors:

- **Land use:**

- Injudicious use of land is responsible for making states more prone to floods and landslides.
- However, other factors such as a change in land use patterns and climate change could have contributed to the situation on the ground.

- **Deforestation:**

- Unfettered development activity had increased the chances of landslides, a major cause of casualties during the floods.

- **Uncontrolled urbanization:**

- The linear development which has been along major road networks, has completely ignored the varying and ecologically sensitive landscape.
- Substantial portions of revenue lands in the State are wetlands and forests, which has resulted in a shortage of buildable land parcels.
- This in turn is creating huge pressure on these ecologically fragile areas for conversion to government-supported infrastructure projects as well as private profit-making enterprises.

- **Poor planning:**

- The State Action Plans on Climate Change elucidate measures for disaster-risk reduction in the wake of an increasing frequency of heavy rainfall in turn leading to more flooding and landslides.

- Though plans and laws such as Integrated Water Resources Management or Coastal Regulation Zone Notification hold key solutions to natural disasters that are linked to water management, most of them are not implemented or followed to the letter.
- A lack of holistic and coordinated measures within planning departments has resulted in further problems
- **Roads, railway lines and housing colonies** being laid and built without regard for natural water ways, but with formal planning permission.
- **Dilution of laws:**
 - The need of the hour is for a review and revision of building bye-laws for urban and rural areas in accordance with bettering environmental sustainability.
 - For instance, in 2017, a judgment of the High Court of Kerala mandating the inclusion of a clause in building rules, and which said that ‘natural drains and streams shall not be obstructed by this development/building permit’, has yet to come into effect.
 - Further, the Kerala Conservation of Paddy Land and Wetland Act, 2008 — it has immense potential to preserve such land as natural watershed buffers — has suffered too many dilutions even as rampant reclamation of paddy lands continues.
- **Mismanagement of dams:**
 - For dams to truly tame floods, experts say dam reservoirs need to be relatively empty before the onset of rain. This was not the case in many states.
 - Local officials have been blamed for exacerbating the situation by failing to gradually open the dams dotting the state’s complex river network, waiting instead until they were already full before unleashing the excess water.
 - More flooding was caused by emergency releases from dams that were full. Despite forecasts of more rain, there were no controlled releases.
 - **World Bank analysis** while preparing the National Hydrology Project (NHP) in 2015 showed that although weather forecasts are more accurate now, dam managers (especially bureaucrats) are reluctant to authorise advance controlled releases.

Measures needed for flood management:

- The dire need is for **watershed-based master planning and development legislated guidelines** for each major river basin, especially those that impact densely populated settlements.
- There must be a demarcation of ecologically sensitive zones using existing village survey maps and public participation.

- There must be clear land use plan for these zones specifying flood plains, protected forest areas, agricultural and plantation zones, with details of the types of crops, building usages permitted and the density of buildings permitted.
- To compensate owners in non-buildable areas, there must be strategies such as Transfer of Development Rights to buildable zones in cities.
- The master plan should focus on permitting only ecologically sensitive building strategies for these areas by proposing new construction techniques.
- Controlled development can be proposed using building height rules, floor area ratio control, and restrictions on cutting and filling natural land.
- Strategies to make sure that all infrastructure projects are carried out in a scientific manner with strict scrutiny must be specified.
- This should include roads built on difficult terrain and all public infrastructure projects in wetlands and the High Ranges.
- Copenhagen in Denmark, which faces a similar problem of repeated flooding, has come up with active cloudburst responsive planning as a process to develop the city in line with climate change needs.

Conclusion:

A complete overhaul of processes to hire technical expertise which allows access to necessary skills, and with a long-term vision of capacity building of local agencies, is the way forward.

Role of external state and non-state actors in creating challenges to internal security.

Discuss the important initiatives and laws taken by government of India to deal with Left wing extremism effected areas. (250 words)

Livemint

Why this question:

The question is straightforward and is about discussing the important initiatives and laws taken by government of India to deal with Left wing extremism effected areas.

Key demand of the question:

The answer must discuss important initiatives and laws taken by government of India to deal with Left wing extremism effected areas.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

One can start by pointing out the regions effected by LWE in India.

Body:

Explain that in order to holistically address the LWE problem in an effective manner, Government has formulated National Policy and Action Plan adopting multi-pronged strategy in the areas of security, development, ensuring rights & entitlement of local communities etc.

Brief upon the various schemes undertaken – Security Related Expenditure (SRE) Scheme, Special Central Assistance (SCA) for 30 most LWE affected districts, Scheme of Fortified Police stations etc.

Conclusion:

Conclude that an ideology based on violence and annihilation is doomed to fail in a democracy which offers legitimate forums of grievance redressal. Thus steps are required to tackle the issue in the right direction.

Introduction:

Left Wing Extremism (LWE) movement has its roots in the Naxalbari area W.Bengal in the 1960's. These Maoists insurgents started running a parallel system of administration in parts of central and Eastern India. They kill civilians, destroy public buildings and extract ransom from businessmen. In the recent years, however, LWE movement is showing decline, because of the shift in the approach of the successive Governments

Body:**Government approach on security front:**

- In the past operations like **Operation Steeplechase, Operation Greenhunt and Operation Greyhound (Andhra Pradesh)** were used to tackle the Naxalites. The **Combat Resolute Action force (COBRA)** is still in place which performs combing actions against Naxal Spread and influence.
- Government would try to bring the insurgents on negotiation table, and offer ceasefire. But the insurgents would misuse the ceasefire to mobilize more weapons and troops.
- Central Armed Police Forces (CAPF) would conduct "Area domination exercises", But when insurgents feel strong presence of CRPF, they would simply vanish, and the moment CRPF retreated, they would come back in the area.
- Because of the above constraints government changed the strategy. Instead of offering ceasefire or conducting area domination exercises, it focused on (surgical) strikes based on hard intelligence. As a result, many of the key leaders have been arrested or eliminated, and the armed insurgent camps have been decimated.
- **Security Related Expenditure (SRE) Scheme** Under this scheme funds are provided to states for meeting the recurring expenditure relating to insurance, training and operational needs of the security forces, rehabilitation of Left Wing Extremist cadres (who surrender in accordance with the surrender and rehabilitation policy of the State Government concerned), community policing, security related infrastructure for village defence committees and publicity material
- **Scheme of Fortified Police Stations:** Some 400 police stations in 9 LWE affected States at a unit cost Rs. 2 crores were sanctioned under this scheme Civic Action Programme Under this scheme financial grants are sanctioned to CAPFs to undertake civic action in the affected states.

- **Surrender Policies by State Governments:** Naxal-affected states have also announced surrender policies whereby they offer cash assistance, land and other benefits in lieu of surrender. However, there is no effective intelligence mechanism to identify Naxal cadres.
- **Special Infrastructure Scheme (SIS)** to construct fortified police stations.
- 2016's **demonetization drive** also affected the LWE-funding
- Further, in 2017, Home Ministry launched '**SAMADHAN**' doctrine. It involves:
 - Controlling arms supply to Maoist using GPS trackers and Unique Identification number (UID) for Gelatin sticks and explosives manufacturers.
 - Each CRPF battalion deployed in the Maoist hotbed is given atleast one UAV.
 - More helicopter support for operations, including private helicopter services.
 - Joint Task Forces along inter-State boundaries, better inter-state coordination and intelligence sharing.
 - Stricter implementation of Prevention of Money Laundering Act (PMLA) to choke funding to LWE groups.

Government approach on Development front:

- In 2014: Ministry of Tribal Affairs launched **Vanbandhu Kalyan Yojana** for holistic development of the tribal people by targeting their education, employment, healthcare, infrastructure and connectivity.
- In 2015: Mines and Minerals (Development and Regulation) Act was amended to setup District Mineral Foundation (DMF). Through this fund, all mining districts receive portion of the mining royalties. The money is spent on the development activities decided by the local people.
- **Civic Action Plan:** Each CRPF company is given Rs.3 lakh for holding medical camps, sanitation drives, sports meets, distribution of study material to children, minor repairs of school building, road, bridges to build confidence among the locals.
- **Media Action Plan:** Each district is given Rs.7 lakh to advertise Government schemes.
- Union Government is organizing extensive training and capacity building programs for of the state service officials for **implementation of Forest Rights act and PESA Act.**
- **Additional Central Assistance' (ACA) for LWE affected districts** for creating public infrastructures and services such as school, hospital, road and rail connectivity, mobile connectivity, and electricity network.
- Schemes employment, skill development, ITI construction etc. have special funds earmarked for LWE with Key Performance Indicators (KPI).

- Union Government implemented the 14th Finance Commission report due to which LWE State Governments have more funds at their disposal to carry out tailor-made developmental schemes as per their requirements.
- In order to holistically address the LWE problem in an effective manner, Government has formulated National Policy and Action Plan adopting multi-pronged strategy in the areas of security, development, ensuring rights & entitlement of local communities etc.

Conclusion:

The issues of internal armed rebellion are sensitive and needs a strategic multi-pronged approach of deterrence and development. Militarization against own countrymen will not bring any solution. The government has to reach out to the local people and ascertain them of their good intent of bright futures for their children in education and peace.

The Maoist insurgency doctrine often glorifies violence as the primary means to overwhelm the existing socio-economic and political structures. Critically analyse the statement with examples.(250 words)

Reference

Why this question:

The question is based on the theme of Maoist insurgency, its spread, causes and repercussions.

Key demand of the question:

Explain in detail the Maoist insurgency doctrine, its philosophical basis and in what way it can be overcome.

Directive:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

Explain the background of the question.

Body:

Explain the dynamics Of Maoist Insurgency in India.

Discuss what are the factors responsible for the growth and spread of Maoism in India. In areas under Maoist domination, the absence of governance becomes a self- fulfilling prophecy since the delivery systems are extinguished through killings and intimidation. This is the first step in the strategy of the Maoists to seek to control the countryside. Explain how they stridently take up issues like ‘displacement of tribals’, ‘corporate exploitation’, ‘human rights violations’ by security forces etc. and often make fantastic claims in this regard which get reported even by the mainstream media etc.

Suggest what needs to be done.

Discuss few initiatives taken by the government to tackle the issue.

Conclusion:

Conclude with way forward.

Introduction:

The Naxalite–Maoist insurgency is an ongoing conflict between Maoist groups known as Naxalites or Naxals and the Indian government. Maoism is a form of communism developed by Mao Tse Tung. It

is a doctrine **to capture State power through a combination of armed insurgency, mass mobilization and strategic alliances**. Since its inception at Telangana in the 1930s, the insurgent movement has become one of the major threats to the democratic structure and internal security of the Indian nation.

Body:

Glorification of Violence as solution to problems:

- Some sections of the society, especially the younger generation, have romantic illusions about the Maoists, arising out of an incomplete understanding of their ideology. The central theme of Maoist ideology is violence.
- The Peoples Liberation Guerilla Army (PLGA), the armed wing of CPI (Maoist), has been created with this purpose in mind. In the first stage of the insurgency, the PLGA resorts to guerrilla warfare, which primarily aims at creating a vacuum at the grass-roots level of the existing governance structures.
- This is achieved by **killing lower-level government officials, police-personnel of the local police stations, the workers of mainstream political parties and the people's representatives of the Panchayati Raj system**.
- After creating a political and governance vacuum, they **coerce the local population** to join the movement. A strident propaganda is also carried out against the purported and real inadequacies of the existing state structure.
- In areas under Maoist domination, the **absence of governance becomes a self- fulfilling prophecy** since the delivery systems are extinguished through killings and intimidation.
- Most of the Front Organisations are led by well-educated intellectuals with a firm belief in the Maoist insurgency doctrine. These ideologues function as masks to cover the violent nature of the CPI (Maoist) ideology. They also form the propaganda/disinformation machinery of the party.
- They stridently take up issues like 'displacement of tribals', 'corporate exploitation', 'human rights violations' by security forces etc. and often make fantastic claims in this regard which get reported even by the mainstream media.
- The Front Organisations also skilfully use state structures and legal processes to further the Maoist agenda and weaken the enforcement regime. The important functions of these Organisations include **recruitment of 'professional revolutionaries', raising funds for the insurgency, creating urban shelters for underground cadres, providing legal assistance to arrested cadres and mass- mobilisation by agitating over issues of relevance/ convenience**.
- In a nutshell, the CPI (Maoist), the main LWE outfit in India, aims to overthrow the existing democratic state structure with violence as their primary weapon, and mass mobilization and strategic united fronts as complementary components and plans to usher in So-called 'New Democratic Revolution' in India.

However, the socio-economic underdevelopment is the naked truth which has driven Naxalism to its work. Government has taken many initiatives to step up the development in the underdeveloped areas.

- In 2014: Ministry of Tribal Affairs launched **Vanbandhu Kalyan Yojana** for holistic development of the tribal people by targeting their education, employment, healthcare, infrastructure and connectivity.
- In 2015: Mines and Minerals (Development and Regulation) Act was amended to setup District Mineral Foundation (DMF). Through this fund, all mining districts receive portion of the mining royalties. The money is spent on the development activities decided by the local people.
- **Civic Action Plan:** Each CRPF company is given Rs.3 lakh for holding medical camps, sanitation drives, sports meets, distribution of study material to children, minor repairs of school building, road, bridges to build confidence among the locals.
- **Media Action Plan:** Each district is given Rs.7 lakh to advertise Government schemes.
- Union Government is organizing extensive training and capacity building programs for of the state service officials for **implementation of Forest Rights act and PESA Act.**
- **Additional Central Assistance' (ACA) for LWE affected districts** for creating public infrastructures and services such as school, hospital, road and rail connectivity, mobile connectivity, and electricity network.
- Schemes employment, skill development, ITI construction etc. have special funds earmarked for LWE with Key Performance Indicators (KPI).
- Union Government implemented the 14th Finance Commission report due to which LWE State Governments have more funds at their disposal to carry out tailor-made developmental schemes as per their requirements.
- In order to holistically address the LWE problem in an effective manner, Government has formulated National Policy and Action Plan adopting multi-pronged strategy in the areas of security, development, ensuring rights & entitlement of local communities etc.

Conclusion:

It is imperative that government instead of being reactionary goes after them proactively. But it has herculean challenge of doing it in democratic way. It is obvious that there is and should be two pronged approach to counter it, one at ideological level and other at physical level. In former case, good governance by government and delivering good results in fields of Education, Health and overall standard of living will be instrumental.

Challenges to internal security through communication networks, role of media and social networking sites in internal security challenges, basics of cyber security; money-laundering and its prevention

Discuss the most prominently witnessed internal security threats due to social media also discuss the Existing laws for regulation over electronic media in India.(250 words)

The hindu

Why this question:

The question is directly from the static portions of GS paper III.

Key demand of the question:

Explain in detail the prominent internal security challenges/threats that have been witnessed or being witnessed due to social media and one must explain the laws and regulations in place to curb the same.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Body:

Explain how Spread of social media and cell phones has created the phenomenon of 'flash crowds' at the site of encounters. In addition, media like Facebook and YouTube are being used to great advantage to carry out propaganda.

One can discuss recent examples/incidences to substantiate the possible threats posed by social media on the internal security aspects of the country.

Then move on to detail upon the Existing laws for regulation over electronic media in India.

Conclusion:

Conclude that a serious and clear debate on the issue of freedom of expression, social responsibility, anonymity and data security is the need of the hour. And social media needs to be managed with proper and strict regulations in place.

Introduction:

Social Media can be defined as any web or mobile based platform that enables an individual or agency to communicate interactively and enables exchange of user generated content and it is explained by a number of tools, which includes blogs, Wikis, discussion forums, micro-blogs, twitter and social networking sites. Social Media in recent times has become synonymous with Social Networking sites such as Facebook or Micro Blogging sites such as Twitter.

Body:

Social media threat to nation's internal security

- The advantages of Social media are so many but they are posing threat to Internal Security in various forms like Cyber Terrorism, Fraud, crime, spreading violence, etc.
- According to the Cisco 2013 Annual Security Report, the highest concentration of online security threats is on mass audience sites, including social media. The rapid spread of false information

through social media is among the emerging risks identified by the World Economic Forum in its **Global Risks 2013 Report**.

- With limited government oversight, industry standards or incentives to educate users on security, privacy and identity protection, users are exposed to identity theft and fraud.
- Additionally, these platforms have huge confidential user information, and are likely vulnerable to outside or inside attack which is detrimental to Internal Security.
- **Radicalization: In Recruitment from other countries:**
 - ISIS is using the network of their recruiters around the world & paying them \$2000 to \$10000 depending upon who is recruited. Recruiters are using social media platform.
 - They are releasing videos of to target individuals who are susceptible to its message of violence and adventure.
 - ISIS has also benefited from “disseminators”, individuals who are sympathetic to their cause but not fighting for them.
- **Fake News:**
 - Competition among websites and social media platforms has sometimes resulted in the generation of fake news.
 - Everyone is in hurry to LIKE/SHARE/COMMENT rather than checking the authenticity of the news.
 - The most common fake stories revolve around politics and the attempt is to polarise society, particularly during political events.
- **Cyber Terrorism:**
 - The biggest challenge for internal security of nation through social networking site is cyber terrorism.
 - Today terrorists select Social Media as a practical alternative to disturb the function of nations and other business activities because this technique has potential to cause huge damage. It poses enormous threat in international system and attracts the mass media, the security community, and the information technology corporation.
 - At the same time, due to the convenience, affordability and broad reach of social media platforms like YouTube, Facebook and Twitter, terrorist groups have increasingly used social media to further their goals and spread their message.
 - Social Media became a platform for coordination of plans of attack, communication with cells, or propaganda and information and spread of hate campaign or messages that can hurt the sentiments of people.

- Chat rooms and electronic forums enable the insurgent and extremists groups to communicate with members and supporters all over the world, to recruit new followers and to share information at little risk of identification by authorities.
- **International users:**
 - The other national and international users such as the political parties, NGO's, hackers pose a serious threat using the social media. For example, during the civil turmoil in the Arab Spring Uprising, the various governments were threatened through the social media.
- **To Bring Revolution:**
 - Some countries in the world feel threatened by the fact that social media can bring the people together and thus, create a revolution. This in turn can cause political instability
- **Communal Violence and Fanning Tensions:**
 - Importantly, social media also seems to be playing a significant role in polarising different communities in India and compounding India's Security challenges. The viral videos and false updates of communal clashes, riots and terrorists attack have created a massive impact in the life of public.
 - Mobile and social network interface was used to send offensive clips and hate messages that triggered panic and mass exodus of north east Indians from large parts of India in the aftermath of the ethnic clashes in Assam in 2012.
 - In September 2013, a morphed video on YouTube was used to fan communal riots in Muzaffarnagar in Uttar Pradesh and led to mass panic.
- **Virtual Community:**
 - Popular social networking websites are another means of attracting potential members and followers. These types of virtual communities are growing increasingly popular all over the world, especially among younger demographics. This can build Anti-national Sentiments among Society.
- **Fraud:**
 - Social networking sites also invite fraudsters to take excellent opportunity to become wealthy by applying deceiver schemes.
- **Criminal Activity and Money laundering:**
 - Social networking sites also pose major challenge in financial and organized crime which destabilizes the system. It creates threat to a company's security because of what employees might disclose and they are on prime target for cyber criminals.

Existing laws for regulation over electronic media in India

- Information Technology Act 2000
- Draft Data Protection Bill

Way forward:

- Institutionalise the blueprint for a National Social Media Policy:
 - The Indian establishment needs to recognise the medium and grant it a legal status if it needs to deal with the multitude of challenges that rise out of it effectively.
 - The National Cyber Security Policy needs to be revised to include social media challenges which are distinct from the cyber security threats.
- Replicate “Social Media Labs” across the country.
- Serious and clear headed debate on the issue of freedom of expression, social responsibility, anonymity and data security is the need of the hour.

Meticulous co-operation and intelligence-sharing are needed between the countries to fight the new age terrorism which has global reach and sophisticated tools at its disposal.
Discuss.(250 words)

Reference

Why this question:

Key demand of the question:

Explain in detail the need for Meticulous co-operation and intelligence-sharing are needed between the countries to fight the new age terrorism.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

State the present challenges or the ones faced in the past on this front.

Body:

Briefly define terrorism and state with examples of how a new version of terrorism has evolved. Discuss the reasons that led to the emergence of new age terrorism. Suggest way forward how countries should tackle this threat and conclude suitably.

Conclusion:

Conclude by suggesting solutions to the issue.

Introduction:

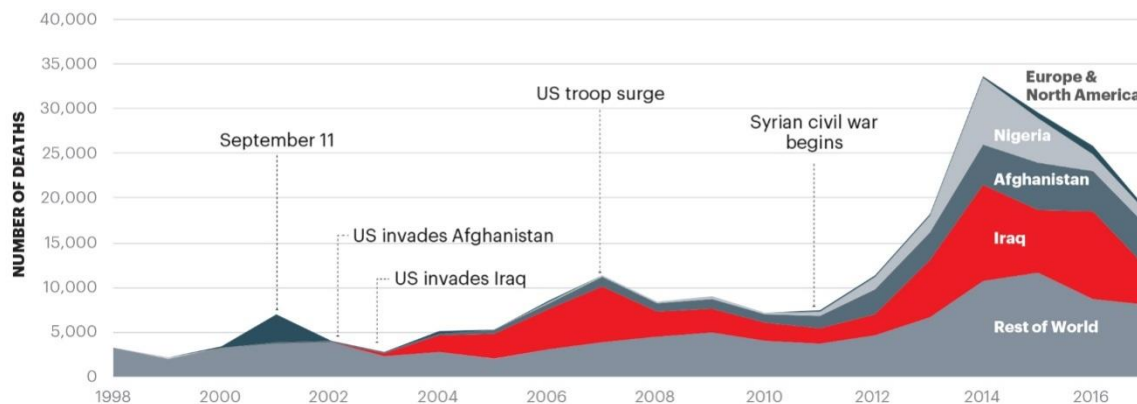
International terrorism poses an increasingly dangerous and difficult threat to world. Today’s terrorists seek to inflict mass casualties, and they are attempting to do so across globe. They are less dependent on state sponsorship and are, instead, forming loose, transnational affiliations based on religious or ideological affinity and a common hatred. This makes terrorist attacks more difficult to detect and prevent.

Body:

Trends in Terrorism:

44% Since peaking in 2014, deaths from terrorism have fallen 44%.

60 Since 2012, more than 60 countries experience at least one fatal terrorist attack each year.



Source: START GTD, IEP Calculations

The increase in attacks and deaths across more countries has meant that the impact of terrorism is becoming more widespread, even as deaths from terrorism are decreasing. As the intensity of terrorism has increased over the last two decades, its impact has also spread to more countries around the world.

Measures need to tackle global terrorism:

- A comprehensive and multidimensional strategy for the “War on Terror” must involve an integrated view of these strategic military and economic domains, among others.
- Addressing UN High-Level conference on Heads of Counter Terrorism, India extended a five-point formula –
 - Exchange of timely and actionable intelligence.
 - Prevention of misuse of modern communication through collaboration with the private sector.
 - Building capacities for improved border controls.
 - Sharing of info related to the movement of passengers.
 - Designation of Counter-Terror focal points to fight global terror.
- In addition, there should be a concerted effort from the countries affected by the scourge of terrorism to pressurize countries who engage in state-sponsored terrorism.
- It is necessary for countries fighting terrorism **to learn more closely from their differences, rather than try to generalise from experience.**

- The success or failure of each of these approaches must be studied & applied to smaller countries suffering from global terrorism based on applicability.
- **United Nations must become the global Centre to fight global terrorism.** For such, Comprehensive Convention on International Terrorism must be agreed upon on basis on common definition of terrorism.
- The functioning **UNSC 1267 Committee** should be strengthened.
- The complete implementation of **UN Global Counter-Terrorism Coordination Compact** that was agreed upon in 2018.
- **Intelligence sharing between countries** needs to be strengthened and countries currently not affected by global terrorism need to take the threat seriously.

Conclusion:

India should play a proactive role to neutralize any threat of terrorism. There is a need for the world to join hands and take concrete multilateral initiatives to ensure that terror groups are dealt with a heavy hand. Accepting and ratifying the Comprehensive Convention on International Terrorism (CCIT) proposed by India would be good first step.

What do you understand by Cyber warfare? Outline and discuss the cyber threats which India is vulnerable to and bring out the state of the country's preparedness to deal with the same. (250 words)

Economictimes

Why this question:

The question is based on the concept of cyber warfare.

Key demand of the question:

The answer must explain what is cyber warfare, India's preparedness aspects in detail.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Define what is cyber warfare.

Body:

Discussion should include the following:

Discuss the concept of cyber warfare – Cyberwarfare is a broad term describing the use of technological force within cyberspace.

Then move on to discuss the preparedness aspect of India.

Conclusion:

Conclude with need for preparedness and readiness in terms of policies, force and laws.

Introduction:

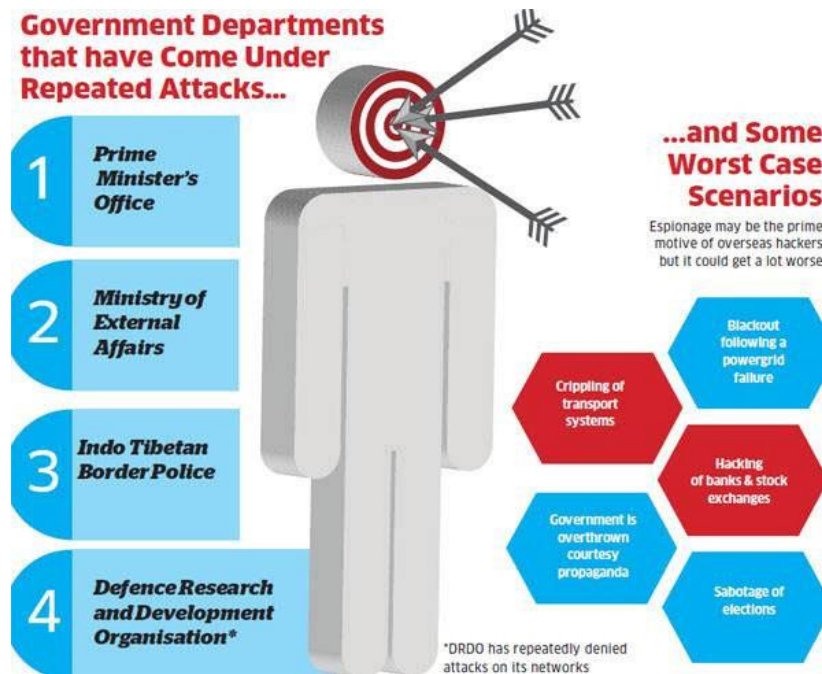
Cyber warfare is computer- or network-based conflict involving politically motivated attacks by a nation-state on another nation-state. In these types of attacks, nation-state actors attempt to disrupt

the activities of organizations or nation-states, especially for **strategic or military purposes and cyber espionage**.

Body:

It involves the actions by a nation-state or international organization to attack and attempt to damage another nation's computers or information networks through, for example, computer viruses or denial-of-service attacks.

India's vulnerabilities to cyber threats:



India's preparedness and challenges faced:

- The attacks can be more tangible causing damage to physical or digital infrastructure.
 - This includes a country's water system or electric grid.
 - Cyber tentacles can spread to political parties, universities and private businesses and Citizens.
 - Potentially worrisome cyber incidents include interference in political affairs, leaks and espionage and the compromising of critical national infrastructure.
- A 2017 study conducted by Symantec found that India ranked fourth in online security breaches, accounting for over 5 per cent of global threat detections. In the beginning of 2017, the newly launched Bharat Interface for Money application (BHIM app) reportedly faced spam threats.
- The real danger to India lies in targeted cyber attacks coming from adversarial nation states.

- Countries like China can bring immense assets to bear in carrying out sophisticated cyber attacks. The success of Stuxnet, which damaged the Iranian centrifuge facility at Natanz is an example.
- Cyber warfare is characterised by an absence of clarity.
 - India can never be certain about the capability of the other side and also the chances of success if we launch a cyber counterstrike.
- There is a push towards greater digital dependence with demonetisation a cashless system is being propagated. Aadhaar and the wider platforms such Digital India and Smart Cities will push things further along. India is the world's second largest digital nation with more than 350 million Indians are online and millions more will be getting connected in the years to come.
- India is not even a signatory to some of the basic international frameworks on Cybersecurity like the Convention of Cybercrime of the Council of Europe which not only European nations but Japan, US, South Africa have become signatories to, except India.
- Indian laws are not in tandem with the ever-changing global cyberspace.
 - The laws are old and hence need to be more dynamic in nature to deal with issues like cyber-espionage, data theft and so on.
 - The Information Technology Act, 2000 (IT Act 2000) is the sole law that deals with cyberspace in India and was passed way back in 2000.
 - Also, the Cyber Law of India has been subject to amendments on various occasions but hasn't served the changing dynamics and the growing threats and manifestations of cyberwar.

Measures needed:

- **A Defence Cyber Agency** could be the first step the government plans to for critical infrastructure and military networks that are increasingly becoming dependent on the Internet, thus increasing vulnerabilities.
- The Defence Cyber Agency will work in coordination with the National Cyber Security Advisor. It will have more than 1,000 experts who will be distributed into a number of formations of the Army, Navy and IAF. According to reports, the new Defence Cyber Agency will have both offensive and defensive capacity.
- Equally important is **cyber propaganda**. During the Doklam conflict, China tried its best to unleash cyber propaganda on India and indulged in complex psy-ops
- **Critical cyber infrastructure** needs to be defended and the establishment of **the National Critical Information Infrastructure Protection Centre(NCIIPC)** is a good step in this direction
- Individual ministries and private companies must also put procedures in place to honestly report breaches. It is only then that the NCIIPC can provide the requisite tools to secure these

networks. This partnership must be transparent and not mired in the usual secrecy of intelligence organisations.

- The **upgrading of the Defence Cyber Agency to a Cyber Command** must be implemented at the soonest.
- A robust ecosystem must be built to secure India from acts of state and non-state actors, including protocol for grievance redressal in international forums.
- Better capabilities must be built to detect and deflect attacks.
- The **computer emergency response team (CERT)** must be strengthened and aligned with military and foreign affairs operations.
- Building a joint task force between the government and key technology players will be crucial.
- The government should push for the creation of a **global charter of digital human rights**.
- A **national gold standard** should be created, which ensures that Indian hardware and software companies adhere to the highest safety protocols
- Impart cybercrime investigation training and technological know-how to the various law enforcement agencies.
- **Cyber awareness** must be spread and there should be multi-stakeholder approach- technological inputs, legal inputs, strengthening law enforcements, systems and then dealing with transborder crime involves lot of international cooperation.

Conclusion:

Most of the Indian banking industry and financial institutions have embraced IT to its full optimization. Reports suggest that cyber-attacks are understandably directed toward economic and financial institutions. With innovative, technology led programmes such as AADHAAR, MyGov, GeM, Digital Locker the new India is the land of technological prowess and transformation. Government and the private sector jointly have to give cyber security some priority in their security and risk management plan.

Proactive participation of state governments is one of the best possible ways to battle Maoist insurgency in the country. Analyse.(250 words)

[Indianexpress](#)

Why this question:

The question aims to analyse the role of state govt. in tackling the problem of Maoist insurgency.

Key demand of the question:

The answer must discuss in what way the long-standing internal national security threat can be handled with active participation of state governments.

Directive:

analyse – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Begin with brief on the current situations of Maoist insurgencies in the country.

Body:

Discussion should include the following:

First explain the scenario of insurgency in the country and expanse, in what way can the insurgency be handled through proactive engagement of government. Take hints from the article and discuss the same with suitable illustrations.

Conclusion:

Conclude with way forward.

Introduction:

In 2006, then Prime Minister Manmohan Singh named Maoist insurgency as “the single biggest internal-security challenge” the country has ever faced. While security forces have made continuous inroads, the Central Committee of the CPI (Maoist) has repeatedly admitted in various reports and meetings that their base area has shrunk, fresh recruitment almost dried up, and desertions increased.

Body:**States’ response to Maoist insurgency:**

- States’ response to the Maoist insurgency has evolved over the years, influenced by both the intensity of threat and the nature of political dispensation at the Centre and the affected states.
- While the previous United Progressive Alliance (UPA) government laid the foundation for the country’s Counter-Insurgency (COIN) strategy, the current National Democratic Alliance (NDA) government has accelerated the pace and enhanced the effectiveness.
- Various COIN initiatives have been an amalgamation of both population-centric and enemy-centric approaches, combining law-and-order mechanisms and development instruments.
- Given that law and order is under the purview of the states or provinces, the most crucial counterinsurgency efforts are in the hands of state-level leadership.
- The federal government supported these efforts with joint strategies, resources, intelligence and coordination.
- **Andhra Pradesh and Chhattisgarh:**
 - Different states have pursued different strategies with different levels of effectiveness. For example, while **Chhattisgarh** has struggled to clean up its part of the so-called “**Red Corridor**”, **Andhra Pradesh’s Greyhounds**, an elite anti-Maoist military unit raised in 1989, have done a stellar job of not just chasing the Maoists out of the state but of keeping them out as well.
 - The Andhra Pradesh state succeeded in stamping out left-wing extremism by **combining police action with socio-economic programmes** implemented by an **effective service delivery mechanism**.

- The Greyhounds have also inspired similar units raised specifically to fight asymmetric wars in jungle terrain, including the **CRPF's Commando Battalions for Resolute Action (CoBRA)**.
- In fact, CoBRA is part of the Union government's anti-Maoist campaign launched in 2009, commonly referred to as **Operation Green Hunt**—a search-and-destroy campaign to clear out the jungles—which prompted massive retaliatory attacks on security forces.
- The state governments took proactive steps by deploying additional resources and are trying their best to check Maoists' expansion.
- In **Chhattisgarh**, many new police stations and security camps have been established. The SP, Kabirdham, organised a number of awareness campaigns in remote areas which are most vulnerable to Maoist influence. He made arrangements for villagers' training and facilitated government employment for hundreds.
- Counter-insurgency strategy involved the nurturing and strengthening of a vigilante group, popularly called **Salwa Judum (or Purification Hunt)**. The Chhattisgarh state government supported the Salwa Judum movement by creating a local militia called Special Police Officers (SPOs) comprising former rebels and local youth.
- The state government also adopted a **Surrender and Rehabilitation policy** and passed the **Chhattisgarh Special Public Securities Act, 2006**, which dramatically expanded the ambit of "unlawful" activities including verbal or oral communications.
- The game-changer seems to have been the **improved road connectivity**: 11 key road projects were finished by 2018, connecting the Sukma, Bijapur and Jagdalpur districts.
- In addition, **enhanced combat capability of local police through modernisation and fortified police stations and improved coordination between Centre and state** in intelligence and paramilitary support are resulting in palpable decrease in Maoist threat.
- **Jharkhand & Odisha:**
 - The most crucial operation for Jharkhand's state forces was the ambitious plan to recapture the forested region of Saranda, which has been a Maoist stronghold since the early 2000s.
 - Together with central forces, the state launched **Operation Anaconda** to weed out Maoists from Saranda and succeeded in 2011. The Central government immediately framed the Saranda Development Plan in 2012.
 - In Odisha, the hotspots of Maoist activities were the most backward and forested, mineral-rich districts with huge adivasi populations—i.e., **Koraput, Malkanagiri, Nabarangapur, Rayagada, Gajapati, Kandhmal and Ganjam and Keonjhar**.
 - State response to left-wing extremism in Odisha was not very different from that of other Maoist-affected states: **from loud denial to grudging acceptance**.

- The State also opened a **training school** in each of the seven police ranges, supplemented by 17 battalions of Central forces stationed in key Naxal-affected districts.
- One of these measures was the **allotment of patta (land entitlements) to adivasis** across several Naxal-infested districts.
- The State also came out with a **model Resettlement and Rehabilitation Policy** to address some of the core issues related to land acquisition and displacement.
- There were also efforts to **conduct food rationing, implement a job scheme, construct roads, and undertake livelihood and entitlements-based programmes.**
- **Bihar, Madhya Pradesh, Maharashtra and West Bengal** too has intensified anti-Maoist operations on the above lines in LWE affected areas.

Way forward:

- Though, Maoists have weakened in states, and their expansionist policy is under check, security forces cannot afford to ignore their protracted war strategy.
- The mobile war (capability to attack at will in base areas and escape unscathed) has to be reversed and the areas of security vacuum (where there is no presence of the security forces) plugged.
- Better technologies, including **Ground Penetration Radar**, are required to detect and defuse IEDs.
- Security forces also need to learn from previous tactical errors and adhere to time-proven SOPs.
- The information network should improve with better road and telecom connectivity in far-flung areas. Surrender and rehabilitation policies must be implemented in letter and spirit.
- The administrative and political vacuum in remote areas must be filled.
- **'The Forest Rights Act'** should be interpreted in favour of forest dwellers. The root cause of the problem that is exploited by the Maoists —socio-economic deficits — must be bridged.
- The human rights of the local populace must be protected by the administration and security forces if the credibility of efforts so far is to be established.

Conclusion:

. The states aimed, and succeeded to a significant degree, to puncture the **Maoist narrative of “an exploitative state run by the bourgeoisie”**. In a show of cooperative federalism—evident from **institutional coordination and the implementation of joint mechanisms**—both Centre and states have exhibited a clear common purpose in counterinsurgency and reducing LWE violence.

What is money laundering? Examine the recent policy efforts by the Government of India to tackle the problem.(250 words)

Livemint

Why this question:

The CBI's case is that the INX Media allegedly flouted the conditional FIPB approval, and brought in over ₹305 crore of FDI against the approved inflow

CBI alleges that INX Media engaged Karti Chidambaram, the promoter director of Chess Management, to resolve the issue.

Key demand of the question:

The question aims to evaluate in detail about money laundering- definition, purpose, means etc. It also wants us to discuss the available policies such as PMLA to tackle the same.

Directive:

Examine – When asked to 'Examine', we must investigate the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Write a few lines about the meaning of money laundering- e.g Money laundering is the process of creating the appearance that large amounts of money obtained from criminal activity, such as drug trafficking or terrorist activity, originated from a legitimate source. The money from the illicit activity is considered dirty, and the process "launders" the money to make it look clean.

Body:

Discuss the steps in money laundering- Placement-criminally derived funds are introduced in the financial system; Layering-the property is 'washed' and its ownership and source is disguised; Integration- 'laundered' property is re-introduced into the legitimate economy; This three staged definition of money laundering is highly simplistic. The reality is that the so-called stages often overlap and, in some cases, for example in cases of financial crimes, there is no requirement for the proceeds of crime to be 'placed'.

Briefly explain how globalization impacts money laundering.

Examine the recent policy efforts taken by the government – India is a full-fledged member of the Financial Action Task Force (FATF), PMLA 2002, Financial intelligence unit -IND etc.

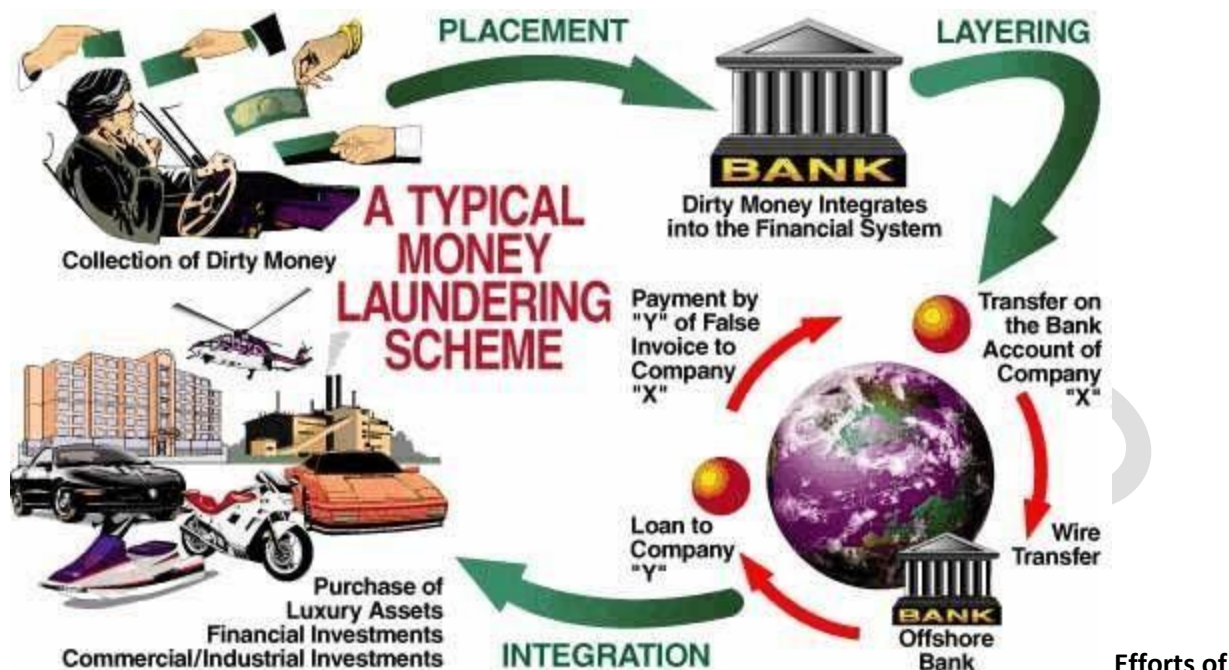
Conclusion:

Conclude with way forward.

Introduction:

Money laundering is a process where the proceeds of crime are transformed into apparently legitimate money or other assets. It is the processing of criminal proceeds to disguise its illegal origin. In simple words, it can be defined as the act of making money that comes from one source to look like it comes from another source. Money laundering is a single process however, its cycle can be broken down into three distinct stages namely, placement stage, layering stage and integration stage.

Body:



Government of India to address money laundering:

In India, before the enactment of Prevention of Money Laundering Act, 2002 (PMLA) the major statutes that incorporated measures to address the problem of money laundering were:

PMLA Act:

- It prescribes obligation of banking companies, financial institutions and intermediaries for verification and maintenance of records of the identity of all its clients and also of all transactions and for furnishing information of such transactions in prescribed form to the Financial Intelligence Unit-India (FIU-IND).
- It empowers the Director of FIU-IND to impose fine on banking company, financial institution or intermediary if they or any of its officers fails to comply with the provisions of the Act as indicated above.
- PMLA envisages setting up of an Adjudicating Authority to exercise jurisdiction, power and authority conferred by it essentially to confirm attachment or order confiscation of attached properties.

The Black money (undisclosed foreign income and assets) and Imposition of Tax Act, 2015:

- To deal with the menace of the black money existing in the form of undisclosed foreign income and assets by setting out the procedure for dealing with such income and assets.

Benami Transactions (Prohibition) Amendment Bill, 2015:

- It aims to expand the definition of Benami Transactions and specifies the penalty to be imposed on a person entering into a Benami transaction.

Institutional framework:**Enforcement directorate:**

- PMLA empowers certain officers of the Directorate of Enforcement to carry out investigations in cases involving offence of money laundering and also to attach the property involved in money laundering.

Financial Intelligence Unit:

- It was established in India in 2004 as the central national agency responsible for receiving, processing, analyzing and disseminating information relating to suspect financial transactions.
- FIU-IND is also responsible for coordinating and strengthening efforts of national and international intelligence, investigation and enforcement agencies in pursuing the global efforts against money laundering and related crimes.
- FIU-IND is an independent body reporting directly to the Economic Intelligence Council (EIC) headed by the Finance Minister.

Way forward:

- Make common people more aware about the problem- The poor and illiterate people, instead of going through lengthy paper work transactions in Banks, prefer the Hawala system which needs to be stopped.
- Fulfilling the purpose of KYC Norms by doing proper KYC.
- Establishment of comprehensive enforcement agencies
- Promote cashless digital transaction

In most cases, Data deprivation makes cybercrime difficult to tackle. While privacy and data protection are necessary, and data localization may pose its own business challenges, India needs to work out a way to crack cyber frauds and crimes. Elucidate.(250 words)

[Livemint](#)

Why this question:

The question is based on the theme of rising cyber crimes and cyber frauds being witnessed across the country.

Demand of the question:

Explain the changes in Sino-Indian relations, the causes and affect it has on the global politics.

Directive word:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:**Introduction**

Discuss the recent controversies pos abrogation of article 370.

Body

One must explain the recent stances where the India and China had a face off, discuss the causes leading to such changing relations and explain what needs to be done to overcome it.

Such answers are best explained with examples to substantiate.

Conclusion

Conclude with what should be India's stand, what needs to be done to ensure peace and security of its borders and peaceful relations with neighborhood country.

Introduction:

Cybercrime is a criminal action that encompasses mobile phones, laptop, network, and computer. It is a threat to country's external and internal security and monetary status. Bengaluru registered the most number of cybercrime cases in 2018. The country's technology capital saw a whopping 5,035 FIRs registered

Body:

Instances of cybercrimes in recent times:

- there have been many instances of the hard-earned money of Indians being taken out of bank accounts and charges loaded onto credit cards through online frauds.
- Another emerging casualty of such cybercrimes is the emerging "startup" ecosystem.
- We are beginning to see multiple cases where customers of genuine startups, unicorns and Indian businesses have been subjected to online fraud.
- These customers initially presume that it is the customer care departments of the companies that have conned them, as we see in many of the cases that get filed.
- This is a dangerous trend. Not only does it shake people's faith in digital systems, the scepticism vis-à-vis online transactions also hurt the potential of emerging companies.

Data Localization – need and prospects:

- Data localization can broadly be defined as 'any legal limitation on data moving globally and compelling it to remain locally'.
- Data localisation laws refer to regulations that dictate how data on a nation's citizens is collected, processed and stored inside the country.
- The main intent behind data localisation is to protect the personal and financial information of the country's citizens and residents from foreign surveillance and give local governments and regulators the jurisdiction to call for the data when required.
- Data localisation is essential to national security. Storing of data locally is expected to help law-enforcement agencies to access information that is needed for the detection of a crime or to gather evidence.
- Where data is not localised, the agencies need to rely on mutual legal assistance treaties (MLATs) to obtain access, delaying investigations.

- On-shoring global data could also create domestic jobs and skills in data storage and analytics, as the Justice SriKrishna report had pointed out.

Challenges of Data localization:

- **Facebook's** Mark Zuckerberg recently expressed **apprehension about nations wanting to store data locally**. According to him, it gave rise to possibilities where authoritarian governments would have access to data for possible misuse.
- The US Electronic Communications Privacy Act bars US-based service providers from disclosing electronic communications to law enforcement agencies of any country unless US legal requirements are met.
- The U.S. criticised India's proposed norms on data localisation as 'most discriminatory' and 'trade-distortive'.
- **EU** termed data localisation as **unnecessary and potentially harmful** as they would create unnecessary costs, difficulties and uncertainties that could hamper business and investments.
- The **bilateral mechanism of the India-US Mutual Legal Assistance Treaty is a bit outdated** and does not seem to work.
- The US Cloud (Clarifying Lawful Overseas Use of Data) Act, however, enables law enforcement authorities in India to request electronic content directly from US service providers under an executive agreement with the US government.
- Data Localization **could affect expression rights** in a number of ways given that the Internet is built on the principle of easy transfer of information across borders.
- Localization may also permit **greater censorship of domestic dissident or political voices** and affect the extent to which Indian content is accessible abroad.
- One of the main arguments against mandatory localization stems from the **cost** that it is likely to impose on businesses and consequently, their consumers and the economy as a whole.

Way forward:

- **Data localisation is a critical necessity** for law enforcement.
- **Access to data by Indian law agencies**, in case of a breach or threat, cannot be dependent on the whims and fancies, nor on lengthy legal processes of another nation that hosts data generated in India.
- India urgently needs a **legally-backed framework** for a collaborative trigger mechanism that would bind all parties and enable law enforcers to act quickly and safeguard Indian citizens and businesses from a fast-growing menace.
- The customer also has a responsibility to **maintain basic cyber hygiene**, which includes following practices and taking precautions to keep one's sensitive information organized, safe and secure.

- **Real-time intelligence** is required for preventing and containing cyber attacks.
- **Periodical 'Backup of Data'** is a solution to ransomware.
- Using **Artificial Intelligence (AI)** for predicting and accurately identifying attacks.
- Using the knowledge gained from actual attacks that have already taken place in building effective and pragmatic defence.
- Increased awareness about cyber threats for which **digital literacy** is required first.

Conclusion:

All the players involved, including banks, telecom companies, financial service providers etc. and the government, need to play a responsible role in ensuring innocent citizens do not undergo the trauma of suffering losses. As a nation making a huge transition to a cashless economy, public faith in the digital system needs to be consistently reinforced.

Security challenges and their management in border areas; linkages of organized crime with terrorism

Border administration/ management is a multifaceted task due to difficult topography and challenging relations with some countries. Elucidate the challenges and approaches for effective border management.(250 words)

Why this question:

The question expects us to discuss the challenges of border management and the strategies India has employed to tackle such challenges.

Key demand of the question:

The answer must discuss the issues faced by the country in managing its borders owing to hostile relations with neighbours or other countries and in what way it should manage and handle.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Begin with brief introduction stating the context of the question.

Body:

Discussion should include the following:

Explain the existing issues India is facing on border security fronts.

Explain challenges – Unilateral actions by some nations to change the status quo in their favour.

Misuse of borders (especially porous open borders) for smuggling, illegal migration, etc.

Little or no support from counterparts of neighbouring nations and in some cases active support by cross border elements to illegal activities.

Cultural, ethnic and linguistic affinity across borders and clan loyalties

Multiple agencies are involved in border management, lack of Inter agency cooperation and coordination

Support of state and non-state actors to aid infiltration, smuggling, trafficking.

Then discuss the measures that can be taken.

Conclusion:

Conclude with way forward.

Introduction:

India has one of the longest and most varied of international borders. Historical and political reasons have left India with an artificial unnatural border. Border Management is an integral approach towards borders in which along with security enhancement, infrastructure & human development is undertaken. The challenge of coping with long-standing territorial and boundary disputes with China and Pakistan, combined with porous borders along some of the most difficult terrain in the world, has made effective and efficient border management a national priority.

Body:

India has had to deal with **numerous challenges** with respect to border management such as:

- India's rate of growth has far outpaced that of most of its neighbours and this has generated peculiar problems like mass migrations into India.
- **Current fence:**
 - The present one has a high rate of degradation due to snow and has to be repaired after every season which costs about Rs. 50-60 crore every year
 - Over time infiltrators have devised ways to cross it.
- India's internal security challenges are inextricably linked with border management. This is so because Indian insurgent groups have for long been provided shelter across the nation's borders by inimical neighbours.
- **No real-time coordination:**
 - Due to the lack of understanding of military issues among the decision-making elite, India's borders continue to be manned by a large number of military, paramilitary and police forces
 - Each of which has its own ethos and each of which reports to a different central ministry at New Delhi, with almost no real coordination in managing the borders.
- Border management is designed for a 'fire fighting' approach rather than a 'fire prevention' or pro-active approach
 - It is based on a strategy of 'reaction and retaliation' rather than on a holistic response to the prevailing environment, resulting in stress and decision making problems at the functional level.
- Due to the non-permanent presence of the Myanmar army in that region, the reason primarily being the hostile terrain, ousting the Indian militants remains a challenge.

- Similarly, ethnic rebels from Myanmar have found bases within states like Mizoram. Thus, the 1,643 kilometre long Indo-Myanmar border remains a challenge.
- The border security scenario is marked by
 - increased cross-border terrorism
 - infiltration and ex-filtration of armed militants
 - emergence of non-state actors
 - nexus between narcotics traffickers and arms smugglers
 - left-wing extremism
 - separatist movements aided and abetted by external powers
 - The establishment of madrasas, some of which are potential security hazards.
- Perennial and Seasonal Rivers via which terrorists can infiltrate.
- Un-demarcated boundaries with overlapping claims cause constant friction along borders.
- Mountainous and Hilly terrain especially in North Indian borders which are snow clad and inhabitable during winter season.
- Unilateral actions by some nations to change the status quo in their favour.
- **Little or no support from counterparts of neighbouring nations** and in some cases active support by cross border elements to illegal activities.
- Cultural, ethnic and linguistic affinity across borders and clan loyalties
- Multiple agencies are involved in border management, lack of Inter agency cooperation and coordination
- Support of state and non-state actors to aid infiltration, smuggling, trafficking etc.

Strategies for effective border management have been continuously evolving. Some of them are:

- 24x7x365 day surveillance along Indo-Pak border with **5 layer smart fence**
- Agreement on basic guiding principles and standard operating procedures
- Increasing confidence building measures and communication linkages to avoid unnecessary confrontation and escalation
- Integrated border management by involving and enhancing cooperation with counterparts of neighbouring countries especially along open borders.
- Effective implementation of the recommendations of **One Border One Force** by the Task Force on Border Management to weeds out inter agency frictions.

- **Community measures and awareness** can be deployed along open borders to prevent illegal activities.
- Implementation of **Border Area Development Programme** and other developmental initiatives so that there is no feeling of being left out.

Way forward:

- Infrastructure along with border has to be improved – **rail connectivity along with road connectivity** has to be provided for quick mobilization.
- Building of **additional checkpoints and Border posts** along major and minor trade routes connected with borders
- Building of **floating bridges, walls & electrical fences** where there is high probability of infiltration.
- Taking up of **joint Border management with Countries like Myanmar, Bhutan and Nepal**.
- **Improving healthcare, physical infrastructure and digital connectivity in villages** around borders thus making them stakeholder in Border Management.
- **Madhav Godbole task force** recommendations on border management need to be implemented.
- It had recommended that the **CRPF should be designated as the primary national level counter-insurgency force**. This would enable the other central paramilitary forces like the BSF and Indo-Tibetan Border Police to return to their primary role of better border management.
- It had also recommended that **all paramilitary forces managing unsettled borders should operate directly under the control of the army** and that there should be **lateral induction from the army to the paramilitary forces** so as to enhance their operational effectiveness.
- The **principle of 'single point control' must be followed** if the borders are to be effectively managed.
- The **advances in surveillance technology, particularly satellite and aerial imagery**, can help to maintain a constant vigil along the LAC and make it possible to reduce physical deployment.

Conclusion:

Keeping a strong vigil on its border is very important for any nation to check any kind of illegal activities or intrusion through them. For India, the task becomes difficult where terrain and climate is very complex across some of its border areas. Focussing on improved technology will help in making the task easier for the security forces and make its borders more secure.

Discuss the similarities between the terrorism and organised crime, also discuss what are the various facets of linkages between organized crimes and terrorism.(250 words)

Reference

Why this question:

The question is direct from the static portions of GS paper III.

Key demand of the question:

Explain in detail the linkages of terrorism and organized crime and the similarities between the two, one can discuss how it can be tackled.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Define the terms – terrorism and organized crime.

Body:

Explain there are a number of increasingly similarities between terrorism and organized crime. Both use extreme violence and the threat of reprisals. Both use extreme violence and the threat of reprisals. Both use kidnappings, assassinations, and extortion. Both operate secretly, though at times publicly in friendly territory.

Discuss the challenges posed by them.

Conclusion:

Conclude by suggesting solutions.

Introduction:

Organized crime is described as any group having a corporate structure whose main aim is to obtain money through unlawful activities often surviving on fear and corruption. Terrorism is an act that appears to be intended to terrorise or force a civilian population to influence policy of a government by extortion or to affect the conduct of the government by assassination or abduction.

Body:

Similarities between terrorism and organized crimes:

- First similarity is that **both operate secretly**. Although both terrorist groups and criminal organizations have a strong central leadership, they are mainly based on cell structures to achieve their own goals. Day to day operations are carried out by members of small cells.
- **Both use violence and produce mostly civilian victims.**
- **Intimidation and fear** are characteristics of both groups.
- They use **similar tactics**, such as **kidnapping, assassination, extortion.**
- Terrorist and crime group organizations **use front organizations such as legitimate businesses or charities.**
- Both uses **similar ways to conceal profits and fund raising.**
- The activities of both groups are in cross the **national-regional transnational divide; both groups require safe havens**, and as a result both tend to take advantage of Diaspora communities.

- Both groups are **aided by corrupt officials whose services provide mutual benefits**, such as access to fraudulent documents, including passports and other identification and customs documents to smuggle goods and weapons.

Linkages between Organized crimes and terrorism:

- In general, there appear to be three ways that the crime-terror nexus interact:
 - Through shared tactics and methods;
 - Through the process of transformation from one type of group to the other over time; and JMLC
 - Through short- or long-term transaction-based service-for-hire activities between groups
- In present global climate, high profile crime is committed to gain power and generate huge funds to live lavishly. Researchers have stated that there is strong link between terrorists with criminal organizations.
- Both crime and terrorism have occurred under parallel conditions. These conditions comprise of economic adversity, social stratification, oppressive regimes, weak or limited law enforcement, socioeconomics, and the politics of a particular region.
- Both crime and terrorism allow the marginalised or the subjugated to gain life success by choosing another path that breaks the institutional barriers of entry using innovative, illegal approaches. These methods provide opportunities for ideological wins, financial advantage and vertical movement in a society. .
- Other linkage is through the **spread of fake currency**. Terrorists are the main agent of this currency. Indian mujahidin resorted to crime to raise funds. This includes robberies and kidnapping. Maoists terror movement also uses coercion, robberies of banks and kidnapping to collect huge funds.
- Nexus between organized crime and terrorism increases also due to many factors such as **globalization** in which free flow of trade and human provide opportunity for both to intermingle, communication rebellion through internet, end of cold war that reduce state financing of terrorist therefore terrorist indulge in criminal activities to fill financial needs and lastly, global war on terror.

Conclusion:

In summary, the usual distinction between terrorist and criminal organizations is really a continuum, with purely financial motives at one extreme and purely ideological or political objectives at the other.

“The exponential growth of computer related crime equal with the increasing dependence of computers in our day-to-day lives has posed another tool for terrorists to spread terrorism”. Critically examine the statement in light of recent cyber incidences. (250 words)

The hindu

Reference

Why this question:

The question is straight forward and is about discussing the increasing cyber terrorism incidence across the world.

Key demand of the question:

Explain the rising incidences of cyber terrorism across the world, quote examples and examine the issue in detail.

Directive:

Critically examine – When asked to examine, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

Define what is cyber terrorism.

Body:

Explain the rising incidences of cyber crimes and interlinkages of it with terrorism. Discuss the causative factors, analyse the security challenges it poses owing to its invisibleness.

What needs to be done to address the challenge and control the spread of the same.

Conclusion:

Conclude by suggesting solutions and way forward.

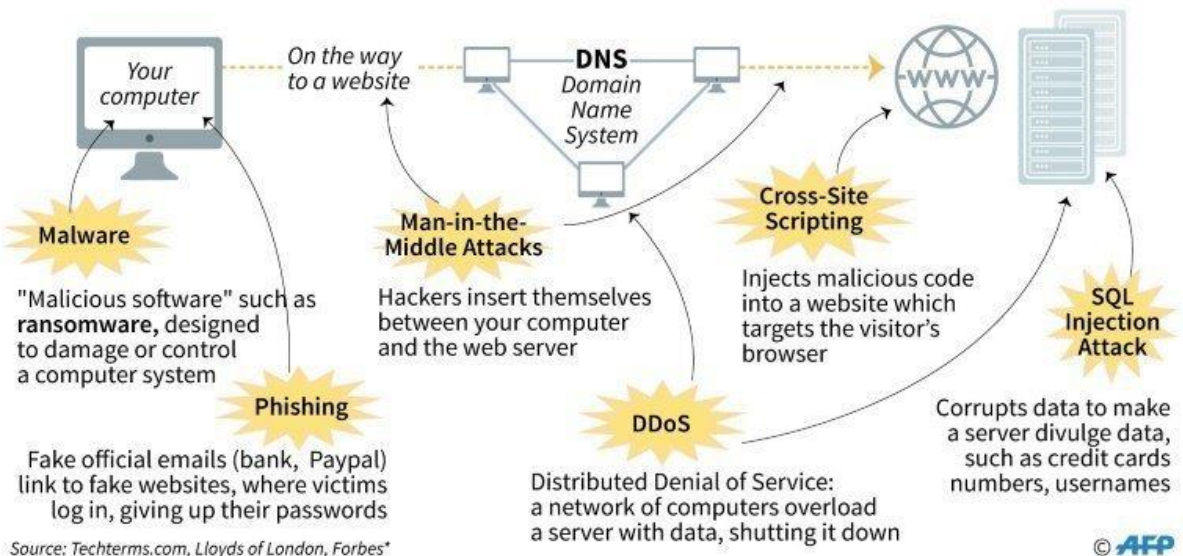
Introduction:

Cyber-attacks have grown in terms of sophistication and reach in the recent times. The countries are witnessing growing cybercrime ranging from fraud calls to malwares that bring banking systems to a standstill. India was one of the worst hit countries by the WannaCry ransomware malware affecting sectors such as banking, finance and manufacturing last year.

Body:

The different types of cyber attacks

Cyber crime worldwide cost \$400 billion in 2015 and is forecast to reach \$2 trillion in 2019*



CYBERATTACKS IN INDIA OF LATE

July 2016

UNION BANK OF INDIA HEIST

Through a phishing email sent to an employee, hackers accessed the credentials to execute a fund transfer, swindling Union Bank of India of \$171 million. Prompt action helped the bank recover almost the entire money

May 2017

WANNACRY RANSOMWARE

The global ransomware attack took its toll in India with several thousand computers getting locked down by ransom-seeking hackers. The attack also impacted systems belonging to the Andhra Pradesh police and state utilities of West Bengal

May 2017

DATA THEFT AT ZOMATO

The food tech company discovered that data, including names, email IDs and hashed passwords, of 17 million users was stolen by an 'ethical' hacker—who demanded the company must acknowledge its security vulnerabilities—and put up for sale on the Dark Web

June 2017

PETYA RANSOMWARE

The ransomware attack made its impact felt across the world, including India, where container handling functions at a terminal operated by the Danish firm AP Moller-Maersk at Mumbai's Jawaharlal Nehru Port Trust got affected

State of cyber security in India:

- According to EY's latest Global Information Security Survey (GISS) 2018-19 – India edition, one of the highest number of cyber threats have been detected in India, and the country ranks second in terms of targeted attacks.
- Although Banking and Telecom are the most attacked sectors but Manufacturing, Healthcare, and Retail have also faced a significant number of cyber attacks.
- India ranks 3rd in terms of the highest number of internet users in the world after USA and China, the number has grown 6-fold between 2012-2017 with a compound annual growth rate of 44%. (NITI Aayog)
- India was ranked among the top five countries to be affected by cybercrime, according to a 22 October report by online security firm "Symantec Corp". India was ranked second globally when it comes to spam and phishing (misleading emails, weblink etc.)

- As per a report by Indian Computer Emergency Response Team (CERT-In), more than 53,000 cyber security incidents took place in India in 2017
- As per the data by NCRB (National Crime Record Bureau), 12317 cases related to cybercrime were registered in 2016.

Need for Cyber Security

- **For Individuals:** Photos, videos and other personal information shared by an individual on social networking sites can be inappropriately used by others, leading to serious and even life-threatening incidents.
- **For Business Organizations:** Companies have a lot of data and information on their systems. A cyber attack may lead to loss of competitive information (such as patents or original work), loss of employees/customers private data resulting into complete loss of public trust on the integrity of the organization.
- **For Government:** A local, state or central government maintains huge amount of confidential data related to country (geographical, military strategic assets etc.) and citizens. Unauthorized access to the data can lead to serious threats on a country.

Way forward:

- Real-time intelligence is required for preventing and containing cyber attacks.
- Periodical 'Backup of Data' is a solution to ransomware.
- Using Artificial Intelligence (AI) for predicting and accurately identifying attacks.
- Using the knowledge gained from actual attacks that have already taken place in building effective and pragmatic defence.
- Increased awareness about cyber threats for which digital literacy is required first.
- India needs to secure its computing environment and IoT with current tools, patches, updates and best known methods in a timely manner.
- The need of the hour for Indian government is to develop core skills in cyber security, data integrity and data security fields while also setting stringent cyber security standards to protect banks and financial institutions.

Trace the changed security situation in Jammu and Kashmir and discuss the road ahead post the recent landmark political changes. (250 words)

[Livemint](#)

Why this question:

The question is in the backdrop of recent scrapping of article 370 and the effect it has on the security front in Kashmir.

Key demand of the question:

The answer must trace the security situation in Kashmir and in what way the dynamics have been changing around the state.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Begin with brief upon what were the issues I the past to current.

Body:

Discussion should include the following:

Explain first that the volatile security scenario in J&K is a manifestation of Pakistan's proxy war with India, combined with the unsettled political issues of the state.

Explain the causative factors of challenges on security on various fronts.

Discuss the possible solutions.

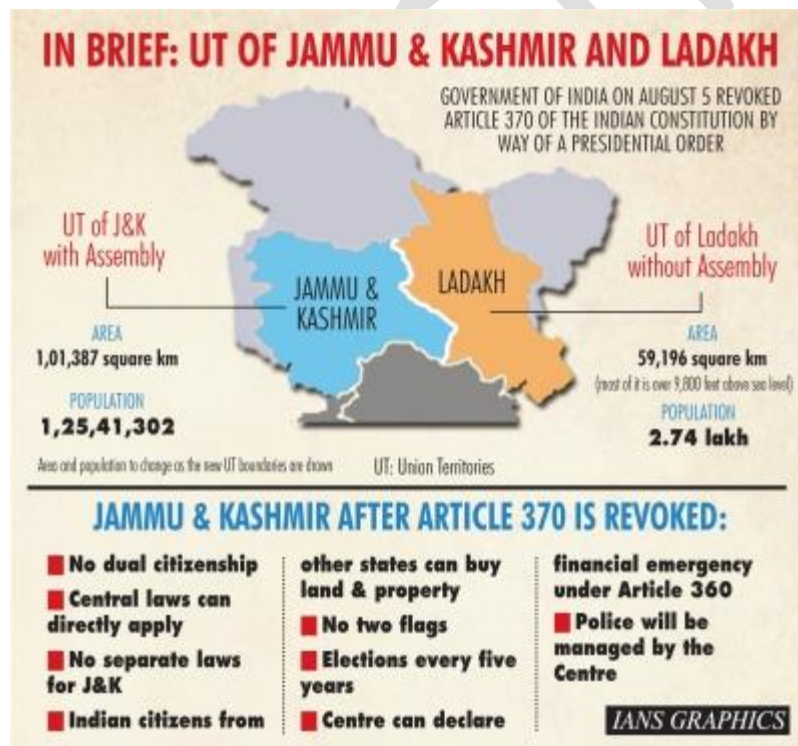
Conclusion:

Conclude with way forward.

Introduction:

The government recently introduced a **resolution to remove provisions of Article 370**, which provides special status to Jammu and Kashmir. In addition, Home Minister also introduced a Bill bifurcating the State of Jammu of Kashmir into Union Territory of Ladakh and the Union Territory of Jammu and Kashmir. The Presidential Order has extended all provisions of the Constitution to Jammu and Kashmir, including the chapter on Fundamental Rights. Therefore, the discriminatory provisions under Article 35A are now unconstitutional.

Body:



Changed security situation in Jammu and Kashmir:

- In effect, the state of Jammu and Kashmir will now cease to exist; it will be replaced by two new Union Territories: Jammu and Kashmir, and Ladakh.
- The UT of Jammu and Kashmir will have an Assembly, like in Delhi and Puducherry.
- The law and order is now under the direct control of Union Government.
- The Government's argument that the continued fragile situation in Kashmir, and the ascendancy of the Taliban and fellow jihadists in Kabul as a fallout of the future US withdrawal from Afghanistan made it necessary to make it a UT.
- National security planners have reviewed how Harkat-ul-Ansar (parent of the Jaish-e-Mohammed) and Lashkar-e-Taiba (LeT) camps had shifted to Khost in eastern Afghanistan under the protection of the then Taliban regime.
- The threat of terrorism in Kashmir could increase just as it did after the Taliban took control of Kabul in 1996, the official added. The rise of the Taliban in the past led to terror attacks by jihadists in Jammu and Kashmir as well as the IC-814 hijacking by the Harkat-ul-Ansar.
- But scrapping 35A has fuelled concerns about whether this is an effort to change the texture of Kashmir, to allow people who weren't part of the permanent resident class in Kashmir to buy land and come in. This could flare up the situation.
- Rejection of the Government move by Pakistan could also lead to further pumping in of state sponsored terrorists to spoil the security situation in JK
- Extremist terrorists may attack vulnerable targets or attack troops as a way of ramping up tensions, forcing the Indian government to respond militarily and creating that spiral of violence that they benefit from.
- The separatists will get a great boost. It gives them a talking point: We've been telling you for all this time that the Indian government doesn't see you as one of them and doesn't respect Kashmiri identity.
- Further, with OBOR running through Kashmir region, it could sour the relations between India and China going forward as India considers it as an intrusion into her sovereignty.

Measures needed:

There is a need for sustained and coordinated efforts of public outreach involving **all the key stakeholders**.

State:

- Non-violent and democratic methods to achieve political aspirations.
- The way out of the deadlock is **to strengthen democracy**.
- **Empowerment of Local Governments** which involves people at the grassroots level.

- Setting aside of the mutual fears of the people of Jammu and of Kashmir and bringing the people of Ladakh into this ambit as well.
- **Socio economic development through various governmental schemes.**
- **Conducting recruitment rallies to employ the youth**, who are in a different state of mind.

Security Forces:

- While the army's **Operation Sadbhavna (a military civic action initiative of 20 years)** has helped in extending marginal outreach, the lack of mass engagement has prevented the development of any perception change and the creation of alternative narratives to counter the propaganda from Pakistan and the separatists.
- **Direct outreach:** conduct of public meetings or "awami sunwais" in the field in areas where the reach of the administration had become marginal. **Example:** Awami Sunwai's of the past.
- Maximum opportunity to the common citizens to **speak, criticise and complain**, so they can realise that there are enough people willing to listen rather than talk down to the common Kashmiri.
- Need to engage the security personnel especially army and CRPF for public outreach and conduct of public meetings and include the politicians and the public officials along with.

Religious heads:

- Involvement of **local clergies** who has substantial hold on the local populace and seek its cooperation in messaging the youth and others on the uniqueness of the Indian system.
- Exploitation of social media, as much as the countering of online propaganda of radicalisation.

Non-State Actors:

- The other major determinant is J&K is the part of Non-State Actors like Separatists, Neighbouring Pakistan and the state sponsored terrorists.
- They have a considerable hold on the people and their opinions.
- Engaging the non-state actors through **interlocutors, Tier-2 diplomacy** should help alleviate the fears and misunderstandings that have cropped up.

Media:

- Media described as the fourth pillar of democracy plays a very vital role.
- They are responsible for reporting of the incidents in a true and unvitiated manner. However, the political patronage and ownership by big media houses has made more one sided views.
- With internet on the surge and ease of access of information at tips, they help in shaping the views and opinions of people.

- Media should be ethical and democratic in its approach. It should spread the message of peace and harmony across people.

Conclusion:

The significant move, in theory, opens up potential opportunities for development-led economic growth in the Union Territories of J&K and Ladakh. Thus, the move is bound to have a significant impact on the demography, culture, and politics of J&K. Whatever its intent in enabling the full integration of Jammu and Kashmir with India, this decision to alter the State's status could have unintended and dangerous consequences.

Various Security forces and agencies and their mandate.

Which forces are responsible for internal security of the country? Discuss their significance in maintaining peace and harmony. (250 words)

IDSAs articles

Why this question:

The question is straightforward and is about discussing the forces that are responsible for maintaining internal security of the country.

Key demand of the question:

The answer must detail upon the forces responsible for internal security of the country.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Begin with brief on need and importance of internal security.

Body:

There are many divisions of Central Armed Police Force, which deal with internal threats – Assam Rifles (AR), Border Security Force (BSF), Central Industrial Security Force (CISF), Central Reserve Police Force (CRPF), Indo Tibetan Border Police (ITBP), National Security Guard (NSG), Sashastra Seema Bal (SSB) etc. discuss the roles played by each of the forces and use case studies wherever possible to justify the answer better.

Conclusion:

Conclude with significance of the forces and need to keep them strengthened.

Introduction:

Internal security is an **act of ensuring and keeping peace within the borders of a nation by maintaining the national law and order and defending its people from internal security threats**. Responsibility to maintain it lies with agencies ranging from police to paramilitary forces, and in demanding circumstances, the military itself.

Body:

Home grown challenges and threats from across international borders have taken different shapes, be it ethnic insurgency, militancy or terrorism that have weakened and damaged the nation.

Central Armed Police Forces: There are many divisions of Central Armed Police Force, which deal with internal threats.

- **Assam Rifles (AR):** The Assam Rifles contribution towards assimilation of the people of the North-East into the national mainstream is truly monumental. They perform many roles including the provision of internal security under the control of the army through the conduct of counter insurgency and border security operations, provision of aid to the civil power in times of emergency, and the provision of communications, medical assistance and education in remote areas.
- **Border Security Force (BSF):** Its operational responsibility is spread over 6385.36 kms. of international border along Indo-Pakistan, Indo-Bangladesh borders. BSF is also deployed on LoC in J&K under operational control of the Army.
- **Central Industrial Security Force (CISF):** Raised in the year 1969, CISF is presently providing security cover to important installations like space and atomic energy establishments, sea ports, airports, coal mines, steel plants, thermal and hydel power plants, oil and petrochemicals installations, heavy industries, defence establishments, security presses, museums and historical monuments. The charter of CISF has been expanded to provide security cover to VIPs as well as to provide technical consultancy services relating to security and fire protection to industries in public and private sectors.
- **Central Reserve Police Force (CRPF):** The Force is presently handling a wide range of duties covering law and order, counter insurgency, anti-militancy and anti terrorism operations. The Force plays a key role in assisting States in maintaining public order and countering subversive activities of militant groups.
- **Indo Tibetan Border Police (ITBP):** ITBP plays an important role in organizing the annual Kailash Mansarovar Yatra besides providing assistance in disaster management in the central and western Himalayan regions. New challenging role that has emerged for ITBP is disaster management as it is the first responder for natural Disaster in Himalayas. ITBP is in the forefront of movement for the preservation of Himalayan environment & ecology.
- **National Security Guard (NSG):** National Security Guard was raised in 1984, following Operation Blue Star and the assassination of Indira Gandhi, “for combating terrorist activities with a view to protect States against internal disturbances”. The primary role of this Force is to combat terrorism in whatever form it may assume in areas where activity of terrorists assumes serious

proportions, and the State Police and other Central Police Forces cannot cope up with the situation.

- **Sashastra Seema Bal (SSB):** As a border guarding force and lead intelligence agency (LIA) for Indo-Nepal border and Indo-Bhutan border. To promote sense of security among the people living in the border area. To prevent trans-border crimes and unauthorized entries into or exit from the territory of India. To prevent smuggling and other illegal activities.

Conclusion:

Keeping a strong vigil on its border is very important for any nation to check any kind of illegal activities or intrusion through them. For India, the task becomes difficult where terrain and climate is very complex across some of its border areas. Focussing on improved technology will help in making the task easier for the security forces and make its borders more secure.

Border Security Force plays a vital role in protecting the sovereignty and integrity of the nation. Comment.(250 words)

Reference

Why this question:

BSF is an important security organization which works in varied terrains ranging from the Thar desert to the Jammu Kashmir and in the swamps of eastern India. It is important to know about the role played by this paramount organization in protecting the sovereignty and integrity of the nation.

Key demand of the question:

Explain in detail the role played by the BSF in protecting the borders in terms of sovereignty and integrity of the nation.

Directive:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

Explain in few lines the origin and genesis of BSF.

Body:

Discuss the wartime and peacetime role of BSF.

Then move onto explaining the role played by the BSF protecting the sovereignty and integrity of India. e.g. discuss its role in 1971 Indo Pak war and Liberation of Bangladesh; discuss the role of BSF in Tackling the Problem of Insurgency in North-Eastern India; Terrorism in Punjab and the Role of BSF (1989-1993); Kashmir Militancy; BSF in Operation Vijay: Kargil, 1999; Left-Wing Extremism etc.

Conclusion:

Conclude by reasserting significance of such forces in maintaining peace and harmony.

Introduction:

Border Security Force (BSF) is a paramilitary force under home ministry responsible for guarding India's land border during peace time and preventing transnational crime. It is a primary border guarding organisation of India and termed as First Line of Defence of Indian Territories. It is the sentinels of Indian borders with Pakistan and Bangladesh. It came into existence on 1st December, 1965.

Body:

BSF currently stands as the world's largest border guarding force with 186 battalions and 2.57 lakh personnel including an expanding air wing, marine wing, artillery regiments, and commando units.

Role played by the BSF:**Peace time:**

- Promote a **sense of security** among the people living in the border areas.
- **Prevent trans border crimes, unauthorized entry into or exit** from the territory of India
- **Prevent smuggling and any other illegal activity.**
- In 2017, Border Security Force (BSF) personnel detected a cross-border tunnel in the forest area of Damala nullah in Jammu's Arnia sub-sector.
- BSF personnel have been performing **Internal Security Duty in Manipur** for the last two years and have been successfully fighting insurgency in those areas.
- During the earthquake in Gujarat in 2001, the BSF was the first to reach out to help the distressed people and during the communal disturbances BSF personnel went all out to restore amity and brotherhood among the people.
- The BSF took over the **erection of the border fencing in Jammu & Kashmir**
- The BSF has been **defending the borders** along with the army and **checking infiltration** on the borders during the current standoff with Pakistan.

War Time:

- Holding ground in less threatened sectors so long as the main attack does not develop in a particular sector
- The BSF units can continue to remain deployed in particular sector even in a war situation to release the Army for offensive tasks. In the event of a major attack developing, which is not within the capacity of the BSF to deal with, the Army can be expected either to reinforce the BSF with Artillery or other support, or relieve the BSF from its role in the particular sector.
- **Protection of vital installations** particularly air-fields against enemy commandoes/para troopers or raids.
- Providing extension to the flanks of main defence line by the holding of strong points in conjunction with other units.
- Limited Aggressive action against paramilitary or irregular forces of the enemy within the overall plan of the Armed Forces.
- Performing special tasks connected with intelligence including raids. These are tasks which might be entrusted to BSF Units by the Army in a war situation according to local necessity. It

would, however, be expected that the state of training and equipment of the particular BSF Units would be kept in view in assessing their adequacy for the tasks.

- Acting as guides in an area of responsibility where routes are known. This is a task which the BSF should be able to perform.
- Maintenance of law and order in enemy territory administered under the control of Army. Normally, ordinary civil police force would be utilised for this task but the BSF could be used to supplement the civil police or to act in lieu thereof in a situation where civil police is not readily available.
- **Provision of escorts.**
- **Guarding of prisoners of war cages**
- **Assistance in control of refugees.** It is the intention to utilise civil police force and armed Home Guards etc. for these tasks but again depending upon local exigencies, the BSF might be entrusted with these tasks.
- **Anti – infiltration duties** in specified area. This is an important responsibility which will have to be performed by security forces. The exact responsibility of the BSF in this matter is still under consideration and separate instructions are expected to be issued.
- During the Kargil conflict in 1999, the BSF remained on the heights of the mountains and defended the integrity of the country with all the might at its command in unison with the Army

Conclusion:

Thus, with a wide set of responsibilities and variety of roles under its belt, BSF helps in maintaining the integrity and security of India.

Discuss the key mandate carried out by Assam rifles. What are the issues and concerns surrounding the dual control of the same? Critically analyse while suggesting solutions to the same. (250 words)

Reference

Why this question:

The question aims to examine the mandate of the security force – Assam rifles, the issues surrounding it.

Key demand of the question:

The answer must discuss the significance of Assam rifles as an internal security force, the issues and concerns involved in it and solutions to tackle the same.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

Begin with brief intro on genesis of Assam Rifles.

Body:

Discussion should include the following:

Explain the genesis – The Assam Rifles was established in 1835. It is considered as the oldest of all paramilitary forces.

Significance – This force plays a crucial role in North East India, handling counterinsurgency and border security operations. They are also guarding the 1,643 km long Indo-Myanmar border since 2002.

Though it is classified as a Central Armed Police Force, its tactics, training, equipment and operational mandate closely mirror those of the Indian Army. It is headed by an Army officer of the rank of Lieutenant General. It currently reports to the Ministry of Home Affairs.

Discuss the issues involved with respect to dual control and others.

Conclusion:

Conclude with way forward.

Introduction:

Assam Rifles which is also referred to as the **Sentinels of North East** is the **oldest paramilitary force of India**. The unit can trace its lineage back to a paramilitary police force that was formed under the British in 1835 called **Cachar Levy**. There are currently 46 battalions of AR under the **Ministry of Home Affairs**. The noted anthropologist Verrier Elwin once described Assam Rifles as “**friends of the hill people**”.

Body:**Key mandate of Assam Rifles:**

- They perform many roles including the **provision of internal security** under the control of the army through the **conduct of counter insurgency** and **border security operations**.
- Provision of aid to the civilians in times of emergency
- Provision of communications, medical assistance and education in remote areas.
- In times of war they can also be used as a combat force to secure rear areas if needed.
- Since 2002, they are also guarding the 1,643 km long Indo-Myanmar border.

Issues and concerns:

- **Dual control:** Assam Rifles is under the administrative control of the Ministry of Home Affairs (MHA) while the operational control lies with the Ministry of Defence.
- **High Attrition:** The number of Assam Rifles personnel taking up voluntary retirement in the past three years has increased more than six times. This is due to high level of stress and strain caused by continuous deployment in the remote and insurgency-hit Northeast.
- **Separation from family, problems linked to increased number of nuclear family structure, maintaining higher living standards.**
- **Managing multiple households, children education and related lifestyle diseases.**

- They also struggle with poor roads and communication network, problems in food and safe drinking water and lack of proper channel to air their grievances without disclosing their identity to their commanding officers.

Solutions:

- Quick resolution of the issue of control over the force.
- Better facilities for soldiers in terms of food, stay, safety and security devices.
- Use of technology to reduce the casualties caused to the soldiers.
- Timely vacation by efficient planning of utilization of human resource.
- Developing infrastructure to reduce the deployment and reach time in case of exigencies.
- Grievance redressal mechanism to listen to the woes of the soldiers.

Conclusion:

Given that the Assam Rifles has been deployed in the Northeast since its inception, no other forces in India is more experienced or has a better understanding of the ground scenario. This shows the imperative nature of Assam rifles in guarding our north eastern border.

Discuss the critical role played by National Disaster Response Force (NDRF) in providing a specialist response to a threatening disaster situation or disaster in the country.(250 words)

Reference

Why this question:

The recent disasters ranging from earthquakes to floods have necessitated discussion around the role played by NDRF in the country.

Key demand of the question:

Explain the role played by NDRF.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

The National Disaster Response Force (NDRF) is a specialized force constituted “for the purpose of specialist response to a threatening disaster situation or disaster” under the Disaster Management Act, 2005.

Body:

Explain in brief the composition of the NDRF -is a force of 12 battalions, organized on para-military lines, and manned by persons on deputation from the para-military forces of India: three Border Security Force, three Central Reserve Police Force, two Central Industrial Security Force, two Indo-Tibetan Border Police and two Sashastra Seema Bal.

Discuss the functional parameters- The aim of the National Disaster Management Authority is to build a safer and disaster resilient India by developing a holistic, proactive, multi-disaster and technology driven strategy for disaster management.

This has to be achieved through a culture of prevention, mitigation and preparedness to generate a prompt and efficient response at the time of disasters. This national vision inter alia, aims at inculcating a culture of preparedness among all stakeholders.

Quote the recent case studies where it has played crucial role.

Conclusion:

Conclude by reasserting its importance.

Introduction:

The National Disaster Response Force (NDRF) is a specialised force constituted “for the purpose of specialist response to a threatening disaster situation or disaster” under the **Disaster Management Act, 2005**. The “Apex Body for Disaster Management” in India is the **National Disaster Management Authority (NDMA)**. The Chairman of the NDMA is the **Prime Minister**.

Body:

At present, National Disaster Response Force consists of **12 battalions, three each from the BSF and CRPF and two each from CISF, ITBP and SSB**. Each battalion have **18 self-contained specialist search and rescue teams of 45 personnel each including engineers, technicians, electricians, dog squads and medical/paramedics**. The **total strength of each battalion is 1,149**. All the 12 battalions have been equipped and trained to respond natural as well as man-made disasters. Battalions are also trained and equipped for response during chemical, biological, radiological and nuclear (CBRN) emergencies.

Objectives of NDRF:

- To fight all natural disasters including radiological, biological, chemical and nuclear disasters.
- Conduct search and rescue operations in the event of any natural catastrophe.

Role of NDRF:

Pre-disaster:

- Will impart disaster management training to local police, administration, local bodies and other stake holders.
- Will organize community awareness and preparedness programme during familiarization and recce of vulnerable areas in the Area of Responsibility.
- Will impart training to teachers and school children in the management of natural disasters.

During-disaster:

- Pro-active deployment at level-III disaster.
- Provide hi-tech specialist response during search and rescue operations.
- Provide immediate relief with available men and material in the affected areas.

Post-disaster:

- To assist states in recovery and maintenance of normalcy at the areas of disaster.

Conclusion:

Since its inception NDRF has continued to win hearts of millions of countrymen, by demonstrating its expertise and compassion while handling disaster situations. The list of such challenges is long. The practice of “**proactive availability**” of this Force to the States and that of “pre-positioning”, in a threatening disaster situations have immensely helped minimise damage, caused due to natural calamities in the country.

The need for a single-point adviser between the government and the armed forces has been a long-standing demand of the defence establishment. In this context, discuss the challenges and strategic advantages of creating The Chief of Defence Staff post in Indian Army.(250 words)

[The hindu](#)

Introduction:

The Chief of Defence Staff (CDS) is a **high military office that oversees and coordinates the working of the three Services**, and **offers seamless tri-service views and single-point advice to the Executive** (in India’s case, to the Prime Minister) on **long-term defence planning and management**, including **manpower, equipment and strategy**, and above all, “**jointsmanship**” in operations. It shall **provide “effective leadership at the top level”** to the three wings of the armed forces, and to help **improve coordination among them**.

Body:

CDS – the strategic advantages:

- The appointment of the CDS will certainly change the civil-military balance, and, if done correctly, will address some of the grievances of the Armed Forces pertaining to their status vis-à-vis the civil services.
- The underlying rationale for appointing a CDS is to separate management and command of the Armed Forces.
- To take the logic of the CDS to its conclusion, the Armed Forces must be operationally restructured into theatre commands—complete joint war-fighting formations—led by combatant commanders.
- In the years ahead, a combination of climate change, violent non-state actors and volatile politics will increase the demands on the government to deploy military forces beyond the subcontinent.
- Despite a multitude of threats, India’s Armed Forces have very limited capacity to operate overseas. Hence, the need for an expeditionary CDS.
- From a defence policy perspective, the CDS presents us with the opportunity to optimize defence economics and make expenditure more effective.

Challenges of CDS:

- The challenge, however, will be **execution and preventing the political apprehensions, bureaucracy-military and inter-service rivalry from scuttling these reforms.**
- **Human capacity deficit:** Each individual service neither understands modern industrial supply chains or economics of scale, but more importantly because their respective leaderships refuse to rationalise and streamline their services.
- Poor leadership and atrocious supply chains because of a heavily-outdated logistics chain, too many different types of ammunition and equipment to bring about economies of scale and general disinterest in logistics is complicating.
- The problem of mass producing cheap precision munitions is still absent in India.
- The heavily army-centric approach of the Indian military as a whole, ignoring the fact that it is air forces and navies that win modern wars.
- Worse still, while armies themselves have moved towards a less manpower-intensive paradigm, the Indian Army continues to invest heavily in manpower, as for example the ill-fated mountain strike divisions.

Way forward:

- To take the logic of the CDS to its conclusion, the Armed Forces should be operationally restructured into theatre commands
- The late strategic thinker K. Subrahmanyam argued that the army and navy chiefs should first hand over their command to theatre commanders, with the air chief doing so at a later stage.
- Three theatres are straightforward: Northern, Western and Southern to address the threats from China, Pakistan and the Indian Ocean, respectively.
- He envisaged doubling the air force to 60 squadrons by 2030 and placing them under theatre commands.
- The solutions are required at the foreign interaction, educational, and industrial level — not at the top, but at the bottom. This is not a macro problem; it is a severe micro problem.

Conclusion:

Most countries with advanced militaries have such a post, albeit with varying degrees of power and authority. The United States Chairman Joint Chiefs of Staff Committee (CJCS), for example, is extremely powerful, with a legislated mandate and sharply delineated powers. The role of the CDS becomes critical in times of conflict.



INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION

SECURE SYNOPSIS

MAINS 2019

GS-III

SEPTEMBER 2019



Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

Discuss the current economic slowdown being witnessed by the country. What are the underlying causes and what measures are needed to be taken to bounce back on the right growth trajectory? Explain.

Indianexpress

Why this question:

The article reflects and highlights the current conditions of fall in GDP numbers of the country and brings out in detail the causes and consequences.

Key demand of the question:

Explain the causes of the slowdown of the economy and discuss what measures are to be taken to overcome the issue.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In brief discuss the current scenario of the economy.

Body:

The latest GDP growth of 5 % is the lowest in six years with the previous low recorded at 4.3 % in March 2013. It is also lower than 5.8 % GDP growth in the March quarter in 2018-19. This is the second straight quarter when the quarterly GDP growth was lower than 6 %. The growth has slowed down in five out of eight sectors, reflecting the widespread weakness in the overall economy.

Explain then the factors responsible for the slowdown – domestic and global.

Discuss what measures must be taken to resolve in short term as well as long term.

Conclusion:

Conclude with way forward.

In economics, a recession is a business cycle contraction when there is a general decline in economic activity. Recessions generally occur when there is a widespread drop in spending. In India there has been recently, a steady decline in the economic momentum in India, and growth expectations for the current year have already fallen from 7.4% to 7%, thus making it important to find the reasons affecting our economic growth.

Underlying causes –

- **shortage of money** - While currency in circulation is not a problem, the money that much of the formal economy uses for transactions, and sees as bank deposits is not finding its way to the market.
- **Lacunae with financial systems** - Our Financial system which converts base money to M3 is not functioning smoothly. When banks give new loans, they “create” money. When the financial system is not functioning effectively, this process of money creation slows down, failing the money multiplier effect. This can be seen in the **failure of banking sectors to extend loans to credit seekers** in the era of **increasing NPAs**.



- Recent **failure of Non-Banking Finance Companies (NBFCs)** which had stepped in to support credit growth has resulted in restricted growth to ensure survival, as a result of which system-wide credit growth has slowed sharply.
- **Govt. Failure to address the issues** - Government has also failed in addressing these issues as there is a general apprehension of running into the risk of another build-up of bad loans.
- There has been a reported **drop in the households' financial savings to GDP ratio in 2017 to 9.4%** highlighting the fact that there aren't enough savings available for both the government and the private sector to be funded adequately, which further impedes the growth.
- There are several other challenges such as **a weak and ailing real-estate market, problems in agriculture, worrying levels of external dependence in India's energy ecosystem, crumbling municipal infrastructure, and stagnating capital flows**, among several others.

Measures required to stunt the slowdown-

- The govt. should **address the growth slowdown concerns**; free up funds for investment and spending by banks, housing finance companies and MSMEs; and importantly, undo some controversial proposals, in the budget and outside it, which were affecting sentiment in the markets and the corporate sector.
- **Promote the ease of doing business** and even the ease of living for ordinary citizens.
- The **issues surrounding auto sector must be addressed** - the accelerated depreciation of 15% (in addition to the existing 15%) for all vehicles acquired till March 31, 2020 and the deferment of the proposed increase in registration fee for new vehicles to June 2020 are positive measures that will boost sentiment and, it is to be hoped, translate into demand.
- Strong **push** to be given for **repo rate linked loan products**.
- Some **welcome initiatives already in effect** – roll-back of the capital gains tax imposed in the budget on foreign portfolio investors, withdrawal of angel tax on start-ups and the promise that non-compliance with corporate social responsibility (CSR) norms will be decriminalised show a government that is willing to listen to feedback from the ground etc.

Thus it is clear that the economy needs to be addressed based on the ideology of reform, perform and transform in totality to overcome the current challenges of slowdown.

Deep Ocean mining for rare minerals still remains an untapped sector in India; in such a context discuss the relevance of project Samudrayaan and its significance.

Livemint

Why this question:

The question intends to examine the prospects of rare minerals from deep ocean and the significance of Samudrayaan.

Key demand of the question:

One should discuss in detail the relevance of Samudrayaan project and potential of deep ocean mining to India.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.



Structure of the answer:

Introduction:

In brief explain what rare earth minerals are.

Body:

First state the context – The ‘Samudrayaan’ is a part of the Ministry of Earth Sciences’ pilot project for deep ocean mining for rare minerals. The project proposes to send a submersible vehicle with three persons to a depth of about 6000 meters to carry out deep underwater studies.

Explain what can be the positive consequences of such initiatives, why is it so significant to the Indian economy.

Conclusion:

Conclude with importance of Marine studies and exploration to Indian economy.

Deep sea mining is a mineral retrieval process that takes place on the ocean floor. It is envisaged that 10% of recovery of that large reserve can meet the energy requirement of India for the next 100 years. It has been estimated that 380 million metric tonnes of polymetallic nodules are available at the bottom of the seas in the Central Indian Ocean.

Significance and potential of Deep ocean mining:

- The floor of the world’s seas is scattered with vast beds of black potato-shaped polymetallic nodules comprising copper, nickel, cobalt, manganese, iron and rare earth elements. These natural minerals are key to making modern gadgets, from smartphones and laptops to pacemakers, hybrid cars and solar panels.
- As expanding technology and infrastructure fuel global demand for these resources whose supply is dwindling fast onshore more and more countries are eyeing the ocean. Once thought to be too costly and difficult, industrial-scale sea mining could begin as early as 2019.

Why India needs seabed minerals?

- India is most interested in copper, nickel and cobalt, as it ramps up clean power generation.
- Cobalt, also produced in Democratic Republic of Congo, is used to make batteries that can store energy from renewable sources, including solar and wind.
- These metals are not widely available in India, so they have strategic importance.
- India’s goal is to become self-reliant in the minerals, and it is “not in a race with anybody”.

Relevance of project Samudrayaan –

Samudrayaan is a pilot project of the Ministry of Earth Sciences for deep ocean mining for rare minerals. It proposes to send men into the deep sea in a submersible vehicle for ocean studies. The project is expected to become a reality by 2021-22. The project has been undertaken by the National Institute of Ocean Technology (NIOT). If the ‘Samudrayaan’ project is successful, India will join the league of developed nations in the exploration of minerals from oceans.

Thus India could be the first developing country to undertake such a project and tap the untapped.

Does the pay-out of ₹1.76 lakh crore to the union government damage the credibility of the Reserve Bank of India as an independent central bank? Critically analyse.

[The hindu](#)

**Why this question:**

The question is amidst the recent controversies of payout of ₹1.76 lakh crore to the government by the RBI in accordance with the recommendations of Bimal Jalan committee.

Key demand of the question:

The answer must address as to in what way the move somewhere has made the RBI lose its credibility yet once again.

Directive:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:**Introduction:**

In brief narrate the recent happenings between RBI and the government.

Body:

Explain What is the issue around RBI payouts this cycle of the year, why and in what way is it different. What is the controversy around the transfer? Explain how RBI earns money in a variety of ways.

Then discuss in what way such move has diluted the powers of RBI.

Conclusion:

Conclude with positives and negatives of the move.

Recently, the Reserve Bank of India (RBI) central board **decided to transfer ₹1.76 lakh crore to the government** (including a sum of ₹52,637 crore from its contingency reserve), a move that is likely to **address the Central government's precarious fiscal situation**.

The transfer amount included the payment of dividend worth ₹1.23 lakh crore, and funds from its reserves, as identified under a **new economic capital framework (ECF) adopted by the RBI board**. The RBI had formed a **committee chaired by former RBI Governor Bimal Jalan to review its ECF** last year.

What is the issue around RBI payouts this cycle of the year?

- The RBI's transfer of funds to the government per se is nothing new. **The amount of funds** being transferred by the central bank to the government **this year is much higher than earlier — 146.8% more than what it had paid out last year**, when it transferred ₹•50,000 crore as dividend.
- The massive payout has **raised concerns** that the **government may be using money from the RBI to meet its urgent spending needs**, thus effectively turning the central bank into a banker for the government. Central banks such as the RBI, however, are supposed to be independent from all forms of government influence.
- In July, the **government amended the Finance Bill** to ensure that the **Securities and Exchange Board of India (SEBI) transferred surplus funds** in its custody over to the government.
- It is a common view that the move to get the RBI to let go of a portion of its accumulated reserve as part of a **wider campaign by the government to strip the powers of various independent regulatory bodies**.



The current relationship between RBI and the Government-

The government **has been criticized** for taking steps since last year **to progressively dilute the powers of the RBI**. The government had tried to convince the central bank to part with more than ₹3 lakh crore from its reserves last year. The **government appointed a committee headed by Mr. Jalan Bimal to overhaul the economic capital framework**.

Impact of the fund transfers-

Negative impacts-

- The primary impact of the fund transfer between the RBI and the Government is **the damage that it does to the credibility of the RBI as an independent central bank**.
- The transfer of surplus reserves to the government is **in effect a forced injection of extra liquidity into the economy**.
- The increased demand to meet the government's fiscal needs will thus **compromise the RBI's ability** to fulfill its primary mandate — **to preserve the value of the rupee by reining in inflation**, by retaining full and final **control over the supply of rupees in the wider economy**.

Positive impacts-

- The government is **expected to achieve its 3% fiscal deficit** target this year with the help of the funds it has received from the RBI.
- The fresh funds will also **help the government to spend more on any fiscal stimulus** plan that it may decide to implement in order to tackle the slowdown in the economy.
- The transfer of money from the vaults of the RBI to fund government spending **will increase the amount of money supply in the economy**, thus exerting an upward pressure on prices.
- The RBI's transfer of surplus funds to the government could thus **effectively turn into a monetary stimulus for the economy** which has been slowing down for several consecutive quarters now.

Government is planning to replace fossil fuel dominated vehicles fleet by electric vehicles till 2030. In this context, discuss the advantages and challenges involved in achieving it.

[downtoearth](https://www.insightsias.com/downtoearth)

Why this question:

The article explains the future of electric cars and the switch over to the non-fossil fuel based industry of automobiles.

Key demand of the question:

One must explain the shift and justify with advantages and also quote the possible challenges that would be faced.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:



In brief narrate the current policy measure being taken aggressively to switch over to electric cars in India.

Body:

Explain the recent initiatives in this direction first.

Back the initiative with the possible advantages it carries with it.

Explain the issues and concerns involved.

Suggest solutions to address the imbalance that might get created due to this sudden transitional change.

Conclusion:

Conclude with way forward.

To enhance National fuel efficiency, provide affordable and environment friendly transportation India has aimed to achieve 100% electrification of road transport vehicles by 2030. National electric mobility plan 2020 is one step in this direction. It has ambitious target of 6 to 7 billion sales of hybrid and electric vehicle by 2020, FAME India scheme has been launched under this plan to achieve the goal.

Why zero emissions vehicles make sense in India?

India is desperate to curb air pollution, strengthen energy security and mitigate climate impacts. Electric vehicles (EVs) provide these co-benefits. Official estimates show that India with ambitious EVs can save about 64 per cent of energy demand for road transport, 37 per cent of carbon emissions by 2030 and save \$60 billion in diesel and petrol costs by 2030.

An initiative by the NITI Aayog, the Federation of Indian Chambers of Commerce and Industry and Rocky Mountain Institute estimates that with 100 per cent electrification, India can save 20 lakh crore and 1 gigatonne of CO2 emissions.

There are worries that while fully battery-operated electric vehicles have zero tailpipe emissions on road, their life cycle emissions depends on source of power generation—coal being the dirtiest compared to hydro and renewable energy. But life cycle emissions intensity of electric vehicles can reduce substantially with more renewable energy infusion as per India's post-2020 climate action plans. The energy source of electricity can change flexibly if renewable energy expands. About 15 per cent of India's power is from hydro while renewables can expand to meet the target of 175 GW by 2022.

Moreover, centralized energy generation to power vehicles opens up better opportunity for pollution control at the source than decentralised emissions control of numerous tailpipes of combustion engines. Delhi-based non-profit Centre for Science and Environment estimates that if all the vehicles (except trucks) were to run on electricity by 2030, the electricity consumed will be about 110 Terawatt-hour or about 5 per cent of the total electricity demand of India in 2030 as projected by 2017 report of NITI Aayog. Likewise, the European Union estimates that EVs will consume 9-10 per cent of their total electricity demand by 2050, when 80 per cent of vehicles can be electric.

Advantage of 100% electrification

- Fuel security - India's dependence on imported oil will reduce energy demand by transport sector will be 64% less.
- Curbing air pollution - burning of fossil fuels releases poisonous gases like NOx and SOx. 100% electrification dependence on fossil fuel for transportation will be zero



- Reduces health risk - air pollution causes many non-communicable diseases. This can be avoided with the use of electrical vehicles
- Mitigate climate change - electrification will reduce the carbon footprint of transport sector. Hence help in getting to the emission target for mitigating climate change it can reduce CO2 emission by 37%.
- Job creation - use of electrical vehicle will cause new to Enterprise to come up it will create new jobs
- Implementation of self-driving cars - electrical vehicle is best suited for the concept of self-driving Cars.
- Inspiration for budding engineers - electric vehicle is a new dimension in transport sector it has potential to attract innovative minds

Challenges

- The time limit for or achieving the target seems very difficult - according to Society of Indian automobile manufacturer (SIAM) only 40% electric vehicle sale is possible by 2030 hundred percent can be achieved by 2047
- No penetration of public charging infrastructure
- On adoption of electrical vehicles problem of e-waste management may aggravate. Large number of batteries will get defunct every years
- Current market of internal combustion engine vehicle will be affected and cause millions to lose their job
- To make electrical vehicle really environment friendly shift to renewable energy is prerequisite
- The major limitation for battery operated electrical vehicle is speed and mileage. Therefore advancement in battery technology is also required to be done in parallel with the adoption of electrical vehicle.
- Example thermal battery has higher power density than that of lithium ion battery but presently only Lithium ion batteries are being used in electrical vehicles

Conclusion

Present requirement to mitigate climate change SDG 7 SDG 13, UNFCCC demands of deep emission cuts on an unprecedented level. Government of India's target of 100% electrification is in line with that but the target has disruptive effect on current automobile industry. Therefore multipoint approached is required to achieve the goal with complete automobile industry in mind.

India's record in promoting occupational and industrial safety remains weak even with years of robust economic growth. In this context, discuss the key provisions of the Occupational Safety, Health and Working Conditions Code, 2019. To what extent, it deprives the basic rights of workers in Industrial ecosystem?

[The hindu](#)



Occupational safety refers mainly to health safety and welfare of the people at work. Status of occupational safety in India has not been robust in preceding years.

Every year 48000 fatal accidents occur in India. Only 20% working population was covered under any occupational safety regulation. For instance fire crackers Factory at Batle Punjab claimed 23 lives this year; Sivakashi factory explosion - 2012, 40 died and 70 injured.

Reason for weak record in occupational safety

- **High competition in market** - to make more profit Industries tends to do cost cutting which impacts occupational safety at workplace.
- **Large availability of cheap workforce** - due to high unemployment people get ready to compromise on their safety in order to get a job.
- **Lack of coverage** - 90% of the workforce in India is under informal sector and majority of employer in informal sector are not covered under occupational safety regulation.
- **Lack of awareness** - employed tend to ignore operational safety at workplace and concentrate more on completing the target

Therefore to enhance the operational safety in India, government has passed operational safety health and working condition code 2019 which combines 13 different labour laws and regulation regarding operational safety and health at workplace in the country.

What is the Code for?

- A healthy workforce would be more productive and the occurrence of fewer accidents and mishaps at work would be economically beneficial.
- So, safety, health, welfare and improved working conditions are pre-requisite for wellbeing of the worker and the country's economic growth.
- With this in mind, the Code repeals and replaces 13 labour laws relating to safety, health and working conditions.
- These include the Factories Act, 1948, the Mines Act, 1952, and the Contract Labour (Regulation and Abolition) Act, 1970.
- The Code enhances the ambit of provisions from existing about 9 major sectors to all establishments having 10 or more employees.
- It does not apply to apprentices.
- Further, it makes special provisions for certain types of establishments and classes of employees, such as factories, mines, and building and construction workers.

Key Provisions of the Code

- **Relevant authorities** - All establishments covered by the Code must be registered with registering officers.
- **Further**, Inspector-cum-facilitators may inquire into accidents, and conduct inspections of establishments.



- Both these authorities are appointed by the central or state government.
- Additionally, the government may require certain establishments to set up safety committees comprising representatives of employers and workers.
- Advisory Bodies - The central and state governments will set up Occupational Safety and Health Advisory Boards at the national and state level, respectively.
- These Boards will advise the central and state governments on the standards, rules, and regulations to be framed under the Code.
- Duties of employers - The Code specifies several duties of employers which include -
 - providing a workplace that is free from hazards that may cause injury or diseases
 - providing free annual health examinations to employees, as prescribed
- In case of an accident at the workplace that leads to death or serious bodily injury of an employee, the employer must inform the relevant authorities.
- Rights and duties of employees - Duties of employees under the Code include -
 - taking care of their own health and safety
 - complying with the specified safety and health standards
 - reporting unsafe situations to the inspector
- Every employee will have the right to obtain from the employer information related to safety and health standards.
- Working Hours - Work hours for different classes of establishment and employees will be provided as per the rules prescribed by the central or state government.
- For overtime work, the worker must be paid twice the rate of daily wages.
- Female workers, with their consent, may work past 7pm and before 6am, if approved by the central or state government.
- Leave - No employee may work for more than 6 days a week.
- However, exceptions may be provided for motor transport workers.
- Workers must receive paid annual leave for at least one in 20 days of the period spent on duty.
- For sales promotion employees, medical leave must be provided for at least one-eighteenth of the period of service.
- During medical leave, the worker must be paid half his daily wages.
- Working conditions and welfare facilities - The employer is required to provide a hygienic work environment.
- These include ventilation, comfortable temperature and humidity, sufficient space, clean drinking water, and latrine and urinal accommodations.



- Other welfare facilities may be provided as per standards prescribed by the central government.
- These facilities may include separate bathing places and locker rooms for male, female and transgender employees, canteens, first aid boxes, and crèches.
- Offences and penalties - An offence that leads to the death of an employee will be punishable with imprisonment of up to 2 years, or a fine up to Rs. 5 lakh, or both.
- Further, courts may direct that at least 50% of such fine be given as compensation to the heirs of the victim.
- For any other violation where the penalty is not specified, the employer will be penalised with a fine between 2 and 3 lakh rupees.
- If an employee violates provisions of the Code, s/he will be subject to a fine of up to Rs 10,000.

Positives

- It increased the Ambit of application of occupational safety regulations by including migrant workers, electronic media etc. under it.
- It reduced the threshold for its application to 10 workers.
- It enabled employing women in night shifts.
- Rationalize the compliance mechanism with organization now required to obtain only one license.

Negatives

- Formation of safety committee and appointment of safety officer the letter in the case of establishment with 500 employees are at the state's discretion.
- Maximum working hour's fixation is left to government to decide which was earlier fixed at 8 hours a day.
- Maximum permissible limit of working condition at hazardous place is also left at the mercy of government.
- No special provision regarding transgender employees.
- Equal pay for equal work finds no explicit mention.

Way forward

- Maximum working hours and limits for working condition should not be left at the discretion of the government it should be aligned with best International practices.
- Implementation of management information system MIS should be made mandatory for hazardous industries.
- The standards of occupational safety and health should be quantified.
- Time to time inspection by third party should be made necessary so that there is no deviation from safety standards.



Conclusion

With the ultimate aim of extending the safety and healthy working conditions to all workforce of the country, the Code enhances the ambit of provisions of safety, health, welfare and working conditions from existing about 9 major sectors to all establishments having 10 or more employees.

It is evident that the Occupational Safety, Health and Working Conditions has some unique new initiatives for both workers and employers.

It promotes health, safety, welfare and better working conditions of workforce by enhancing the ambit of a dynamic legislation as compared to the existing sectoral approach limited to few sectors.

Besides, it also drastically rationalizes the compliance mechanism with one license, one registration and one return for the establishments under the ambit of the Code thereby saving resources and efforts of the employers.

Thus, it balances the requirements of worker and employer and is beneficial to both the constituents of the world of work.

Government has hiked ethanol procurement price for blending with petrol, allowed conversion of old sugar into ethanol. How is the move expected to address problems of the Sugarcane growers in the country? Discuss.

[Indianexpress](#)

Why this question:

The government approved an increase in the price of ethanol to be procured by public sector oil marketing companies (OMCs) from sugar mills for blending with petrol for the 2019-20. The Cabinet Committee on Economic Affairs (CCEA) also allowed conversion of old sugar into ethanol, which again is expected to help mills deal with the current overproduction in the sweetener and make timely payments to farmers for the cane delivered by them.

Key demand of the question:

The answer should explain the effect of recent initiative taken by the govt. to address the sugar woes of the country.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief explain the recent initiatives taken by the govt. to address the sugarcane woes of the country.

Body:

What is ethanol and how do mills produce it?

How is using ethanol becoming a solution? Given the surplus sugar production in the country, the government has allowed mills to produce ethanol from molasses and directly from sugarcane juice.

Explain that since the country is producing too much sugar and is importing oil, the ethanol-blending programme is beneficial both for mills and for the country's balance of payments.

Conclusion:

Conclude with way ahead.

The **government approved an increase in the price of ethanol** to be procured by public sector oil marketing companies (OMCs) from sugar mills for blending with petrol for the 2019-20. The Cabinet Committee on Economic Affairs (CCEA) also **allowed conversion of old sugar into ethanol**, which



again is expected to help mills deal with the current overproduction in the sweetener and make timely payments to farmers for the cane delivered by them.

What is ethanol and how do mills produce it?

- **Ethanol is basically alcohol of 99%-plus purity**, which can be used for blending with petrol.
- The normal rectified spirit used for potable purposes has only 95% alcohol content.
- Both ethanol (also called anhydrous alcohol) and rectified spirit are produced mainly from molasses, a byproduct of sugar manufacture.
- From **one ton of cane, mills can produce 115 kg of sugar (at 11.5% recovery) and 45 kg of molasses (18 kg TFS) that gives 10.8 litres of ethanol.**
- But rather than produce sugar, **mills can also ferment the entire cane.** In that event, they would end up making 84 litres of ethanol and zero kg of sugar.

How is using ethanol becoming a solution?

- Given the surplus sugar production in the country, the government has allowed **mills to produce ethanol from molasses and directly from sugarcane juice.**
- CCEA approved even **use of sugar and sugar syrup for production of ethanol**; mills can simply add these to the molasses mother liquor for further fermentation.
- Currently, **ex-factory prices of sugar** are ruling at around **Rs 32 per kg.**
- But if it were to convert the entire cane juice into 84 liters of ethanol, **the gross prices will be at around 59.48/litre.**
- This is a huge incentive to produce ethanol. This has been additionally facilitated by the **government mandating 10% blending of petrol with ethanol.**
- If mills are able to **divert more of cane juice for ethanol**, it would mean **producing less sugar.**
- Since the country is **producing too much sugar** and is **importing oil**, the ethanol-blending programme is **beneficial both for mills and for the country's balance of payments.**

Way ahead-

- Mills are expected to close the 2018-19 sugar season (October-September) with **all-time-high stocks of 136 lakh tonnes (lt)**, which is equivalent to **six months of domestic consumption.**
- As of now, the sugar mills **have outstanding cane dues of over Rs 10,000 crore**, of which Rs 7,000 crore-plus is in UP alone.
- These will **mount further as crushing for the 2019-20 season begins** in a month's time.

Ethanol is the only **real savior** under the circumstances — both for mills and cane growers.

What do the bank mergers mean for the banking sector? Explain the connection between bank merger and economic growth of the country.

The hindu

**Why this question:**

Finance Minister Nirmala Sitharaman recently announced that 10 banks owned by the Government of India will be merged into four larger banks; thus the total number of state owned banks in the country will have come down from 27 (in 2017) to 12.

Key demand of the question:

One must explain what are bank mergers, their significance and effect on Indian economy.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:**Introduction:**

In brief narrate the background of the question.

Body:

Discuss the following aspects in the answer body –

Explain what is a merger and why are so many state owned banks being consolidated.

Discuss the various reasons cited by the government for its decision to merge state owned banks.

Explain the effect such mergers will have on the economy in detail while presenting pros and cons.

Conclusion:

Conclude with significance of such move to the current conditions of the economy.

Government announced mega bank amalgamation plan that merged 10 PSBs into four larger entities. The four new banks are-

- **Punjab National Bank, Oriental Bank of Commerce and United Bank of India** are to merge to form **the country's second-largest lender**. These three banks are technologically compatible as they use Finacle Core Banking Solution platform.
- **Canara Bank and Syndicate Bank** to amalgamate which would render the merged entity the **fourth-largest public sector bank**.
- **Union Bank of India to acquire Andhra Bank and Corporation Bank** which would make the merged entity the **fifth largest public sector bank**.
- **Indian Bank** (Strong presence in South India) is to **merge with Allahabad Bank** (strong presence in East & North India) – To **maximise geographical synergies**.

History of bank mergers-

- **Narasimham Committee of 1998** had proposed a three-tier banking structure for India – Three large banks of international size, eight to 10 national banks and a large number of regional banks.
- Government had merged **Dena Bank and Vijaya Bank with Bank of Baroda on January 2019, creating the third-largest bank** by loans in the country.
- Earlier, **the State Bank of India** had acquired **its associate banks and Bhartiya Mahila Bank**.
- With these series of mergers, the number of state-owned banks is **down to 12 from 27**.

Other reform measures-



- There will be a number of smaller reforms to the boards of the banks that are aimed at improving their efficiency and accountability.
- In order to make the management accountable to the boards of the banks, **a board committee would be made in charge of appraising the performance of officers** of the rank of general managers and above, including the managing director.
- The banks have also been allowed to **recruit chief risk officers from the market**, at market-linked compensation **to attract the best available talent**.
- Other reform measures were aimed at **increasing the engagement of non-official directors**, allowing bank boards to **reduce or rationalize the number of committees**, and increasing the effectiveness of the directors on the Management Committees of Boards by increasing the length of their terms.

How will the mergers help the banking sector?

- The move is aimed at creating a **robust banking system with global reach**.
- The mergers will help **create stronger institutions** thereby leading to **efficiencies of scale** and **stronger balance sheets**.
- It will help **rationalize costs** across many areas including branches, people, technology etc.
- **Customers** should be able to **get better service and better product suite** and the best of all the merged entities.
- **The Banking sector as a whole will get strengthened** due to obvious efficiencies and will lead to **enhanced productivity** and better results thereby leading to better lending too.

Way Forward

- Dual regulation by the Ministry of Finance and RBI on PSBs often results in paralysis in decision making – which makes consolidation of banks a redundant measure if they are not given power to act swiftly, as pointed by PJ Nayak.
- Governance of public banks needs to be improved before making any significant change in any emerging architecture.
- Bigger banks offer more resilience to the banking sector but overlooking bigger red flags like strong credit appraisal and risk control system would do little help in creating robust banks.
- Therefore due focus on ensuring strong foundation of PSBs is important.

While India has had the longest, uninterrupted and most substantial ties with Gulf nations, it also has the highest stake in regional stability because of its energy and economic interests. Analyse.

[Livemint](#)

Why this question:

In the early hours of 14 September, ten unmanned drones from Yemen caused severe damage to Saudi Arabia's oil facilities in the Eastern Province north of Riyadh. The target: the oil processing plant at Abqaiq and the country's second-largest oil field at Khurais. As markets opened on 16 September, oil prices went from \$59 to \$71 per barrel, though they eased later after the US announced it would release its reserves to stabilize prices.

Key demand of the question:



One should discuss the recent happenings and the oil crisis that the world countries are facing.

Directive:

analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Explain in brief the recent happenings of oil explosions.

Body:

Explain that In West Asia, India has an eight million-strong resident community, whose welfare is of paramount importance not only to the Centre but also several state governments.

Take cues from the article and explain the relevance of it to India and then discuss in detail the relevance of India and its role in the stability of the region.

Conclusion:

Conclude with what should be the way ahead.

India's relations with the West Asian countries are historical since the independence. India has interests in economic, political, security and strategic fields with the West Asian nations. For decades, India was a passive player in West Asia-a beneficiary of good relationships with multiple actors. Historically, India's West Asia policy has been multi-directional. During the Cold War years, India maintained close economic cooperation with both Saudi Arabia and Iran, the rival poles in regional geopolitics. In the post-Soviet world: The bi-directional approach has been expanded to a tri-directional foreign policy to accommodate the three key pillars of West Asia — Saudi Arabia, Iran and Israel.

Importance of west Asia for India

India has huge stakes involved in the region such as energy, trade and safety of Indian community in the region.

Energy security: 70 per cent of India's imported energy needs come from West Asia and this dependence will only increase as the Indian economy continues to grow at 8 per cent or more.

Security of Indian community:

- India is the largest recipient of foreign remittances from west Asia.
- 11 million Indians working in West Asia. Therefore, stability in the region is high on India's core agenda.
- To counter radicalization: close cooperation is essential to counter radicalization in India.
- Gate way to central Asia : West Asia is gate way to land locked and energy rich central Asia .
- Geostrategic importance: To reduce the influence of china in west Asia and in Arabian Sea. China is continuously making in road to west Asia through OBOR initiative.

Challenges in west Asia

- **Political instability -**
- The security situation in West Asia has been continuously deteriorating ever since the onset of the Arab Spring in December 2010.



- The internal security situation in Syria, Iraq and Yemen has gone from bad to worse. The regional powers continue to fight proxy wars on sectarian lines, pumping huge amount of money and weapons to bolster their favored groups.
- The involvement of extra-regional players such as the USA and Russia in the internal conflicts in West Asia has further aggravated the situation.
- The GCC-Iran rivalry, Shia-Sunni conflict, external intervention in the region, the fear of rise of religious radicalism etc. have further contributed to instability in West Asia.
- **Terrorism:** Terrorism has emerged as the biggest security threat to the region. The rise of the Islamic State in Iraq and Syria (ISIS) is the most disturbing trend.
- **Saudi-Iran rivalry:** destabilizing West Asia and influencing West Asian geopolitics.
- **Pakistan factor:** Pakistan is very close ally of many west Asian countries especially with GCC.
- **Shia- Sunni divide** may impact internal security of India.
- India's close relation with Israel is another sore point with west Asia.
- India's close relation with Iran may antagonize Saudi Arabia. India has to balance its ties with all three regional power in west Asia-Iran, Israel and Saudi Arabia.

India's "Look West" policy

India adopted look west policy in 2005. However, the policy did not get much attention since 2005. Recent visit of Prime Minister Narendra Modi to number of west Asia countries has the potential to transform our engagement with West Asia.

Change in West Asian strategic thinking

- Several factors have contributed to this fundamental shift in West Asian strategic thinking.
- First, the structural change in the global energy market with West Asian oil and gas increasingly heading to South and East Asian markets rather than to the Trans-Atlantic markets.
- Second, partly as a consequence of this change in flows and partly owing to the fiscal stress faced by the trans-Atlantic economies, West Asia is looking to India and other Asian powers to step in and offer security guarantees to the region. Many GCC states have welcomed defence cooperation agreements with India.
- Third, in the wake of the Arab Spring and the mess in Egypt and Iraq, the Gulf States find India and China to be more reliable interlocutors than many western states.
- Fourth, under pressure from radical and extremist political forces within West Asia, most states in the region have come to value the Indian principle of seeking and securing regional stability as an over-riding principle of regional security.

Indian economy is one of the fastest growing major economies in the world. To sustain the high economic growth of around 8% in the coming decades, energy security is of paramount importance to India. Despite India's efforts to develop its domestic energy capacity, it is dependent on imports for 80% of its oil needs, of which roughly 55% is sourced from the Persian Gulf region and more than



80% of gas supplies. This highlights the need for energy policy cooperation with the resource rich West Asian countries. Consequently, India has adopted a 'Look West' or 'Link West' policy in this regard.

Saudi Arabia is India's second largest source of oil. Iraq is also a major source of Indian energy imports. Further, the energy imports from Iran picked up in the recent past after the easing of sanctions by US. India has also enhanced its bilateral engagement with countries like Oman and UAE and also at institutional level with GCC (Gulf Cooperation Council).

Though countries such as Saudi Arabia, Kuwait, Iran, Iraq and Qatar will continue to be its major suppliers of oil and gas, India is trying to walk the diplomatic tight rope in West Asia by partnering with Israel in its Leviathan natural gas field in the East Mediterranean Sea.

India's energy relation with West Asian countries are intricately related with the Central Asian countries. Thus India has developed Chabahar port in Iran to access the Central Asian energy market. Besides energy infrastructure projects like TAPI gas pipeline and International North South Corridor will have ripple effects on the India's energy engagements with the West Asian Nations.

India's energy policy engagement with the West Asian region is also related to providing maritime security in the region as most of the shipping vessels pass through Persian Gulf and Indian Ocean. Other major powers like China have increased its footprint in the region. Thus India must also take stock of this geopolitical game in order to secure its own energy security.

Analyse the causes of economic slowdown in detail and suggest measures to boost the economy.

Livemint

Why this question:

The article talks about the causes of recent economic slowdown being witnessed by the country.

Key demand of the question:

One should explain the causes of the economic slowdown and what are the necessary measures that need to be taken to overcome the situation.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Start with what is an economic slowdown.

Body:

Explain in detail the following dimensions:

Discuss first what is meant by slowdown in an economy?

What is the problem with Indian economy?

Discuss the structural and cyclical reasons leading to do the current slowdown in the Indian economy.

Suggest what all reforms can be done?

Conclusion:

Conclude with way forward.

Economic growth is measured by an increase in gross domestic product (GDP), which is defined as the combined value of all goods and services produced within a country in a year. Many forces contribute to economic growth. However, there is no single factor that consistently spurs the perfect



or ideal amount of growth needed for an economy. Unfortunately, recessions are a fact of life and can be caused by exogenous factors such as geopolitical and geo-financial events.

Causes for slowing economy:

- One of the reasons of slowing down of growth can be attributed to shortage of money. While currency in circulation is not a problem, the money that much of the formal economy uses for transactions, and see as bank deposits i.e. M3 or broad money and is eight times the hard currency in circulation, is not finding its way to the market.
- Our Financial system which converts base money to M3 is not functioning smoothly. When banks give new loans, they “create” money. When the financial system is not functioning effectively, this process of money creation slows down, and the ratio of M3 to M0 (also called the money multiplier) falls.
- This can be seen in the failure of banking sectors to extend loans to credit seekers in the era of increasing NPAs.
- Recent failure of Non-Banking Finance Companies (NBFCs) which had stepped in to support credit growth has resulted in restricted growth to ensure survival, as a result of which system-wide credit growth has slowed sharply.
- Government has also failed in addressing these issues as there is a general apprehension of running into the risk of another build-up of bad loans.
- There has been a reported drop in the households’ financial savings to GDP ratio in 2017 to 9.4% highlighting the fact that there aren’t enough savings available for both the government and the private sector to be funded adequately, which further impedes the growth.
- There are several other challenges such as a weak and ailing real-estate market, problems in agriculture, worrying levels of external dependence in India’s energy ecosystem, crumbling municipal infrastructure, and stagnating capital flows, among several others.

Curing the ailing growth

- One way of addressing the economic woes is to speed up the privatization of Public Sector Banks as it has been established beyond doubt that there are structural problems with a state-owned banking system.
- Reducing bank interest can also potentially boost the capacity of lenders to extend loans and, in turn, boost growth in the world’s fastest-growing major economy.

Way Forward

India's growth has been impressive in recent years but this is a country whose development is hampered by endemic structural problems. India requires significant investment in infrastructure, manufacturing and agriculture for the rapid growth rates of the last fifteen to twenty years to be sustained. In order to fulfill this it needs to create a robust financial structure that can serve the needs and demands of growing nation.



India's experience with existing free trade agreements has been lukewarm so far, explain the underlying reasons and discuss what should be the way ahead to change this experience into a positive outcome.

Reference

Why this question:

The article critically examines the Indian scenario of Free trade agreements and its effects on India's economy.

Key demand of the question:

India signed a series of Free Trade Agreements (FTA) in Asia that came into force in the 2000s. Across industry and policy-makers, a view has emerged that these FTAs have not served India well, and even actively damaged Indian industry. Thus one has to analyse in detail the aspects of FTAs with respect to Indian economy.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief define what FTAs are.

Body:

Explain in what way the success of an FTA should be judged against its objective of enhancing trade. Discuss the factors responsible for such an effect and also suggest what steps should be taken to ensure better realization of the FTAs.

Conclusion:

Conclude with way forward.

Free trade agreements are a key to creating seamless trading, but there are genuine concerns when India signs up new such pacts because of past experience.

Trade theory has consistently been a strong proponent of free trade of goods, services, capital and labour. However, a growing wave of protectionism has dominated global trade of late. While it is difficult to assess whether this will lead to a significant shift in the global trade paradigm, a review of India's existing free trade agreements (FTAs) before negotiating new ones is necessary.

Review of India's FTAs:

India is a fairly open economy with overall trade (exports plus imports) as a percentage of GDP at around 40%. Its exports have diversified both in terms of markets and products in the past two decades. Indian exports have gradually found their way into new markets and the export sector has moved up the value chain, leading the way with high-value products like industrial machinery, automobiles and car parts, and refined petroleum products.

Indian exports are sensitive to price changes, global demand and supply-side bottlenecks. Estimates suggest that a 1% increase in the country's international relative export price could reduce export volume growth by about 0.9% for all industries, and by about 1.1% for the manufacturing sector. However, global demand operates with a factor slightly above 1.5, suggesting that, given the composition of our export basket, increase in global demand drives India's exports much more than price cuts.



India's exports to FTA countries have not outperformed overall export growth, or exports to rest of the world.

For example, India's trade deficit with Asean (Association of Southeast Asian Nations), South Korea and Japan has doubled to \$24 billion in FY2017 from \$15 billion in FY2011 (with the signing of the respective FTAs) and \$5 billion in FY06.

Also, India's exports are much more responsive to income changes as compared to price changes. So, a tariff reduction or elimination does not boost exports significantly. Utilization rate of regional trade agreements (RTAs) by exporters in India is very low.

Most estimates put it at less than 25%. Lack of information on FTAs, low margins of preference, delays and administrative costs associated with rules of origin, non-tariff measures, are major reasons for under-utilization.

When it comes to the **India-Asean FTA**, there is a deterioration of the quality of trade. Apart from the surge in total trade deficit due to tariff cuts, sector wise trade flows also paint a grim picture.

As per the UN's Harmonised System of Product Classification, products can be grouped into 99 chapters, and further into 21 sections like textiles, chemicals, vegetable products, etc. India has experienced a worsening of trade balance (deficit increased or surplus reduced) for 13 out of 21 sectors.

This also includes value-added sectors like chemicals and allied, plastics and rubber, minerals, leather, textiles, gems and jewellery. Sectors where trade balance has improved include animal products, cement and ceramic, arms and ammunitions. Sectors where trade deficit has worsened account for approximately 75% of India's exports to Asean.

So, there are genuine concerns of trade asymmetry when India signs up new FTAs because of past FTA experience. However, FTAs are instrumental in creating seamless trade blocs that can aid trade and economic growth. Here are some suggestions while going forward with future FTA negotiations.

Way Forward:

Before getting into any multilateral trade deal, India should review its existing FTAs in terms of benefits to various stakeholders like industry and consumers, trade complementarities and changing trade patterns in the past decade. Negotiating bilateral FTAs with countries where trade complementarities and margin of preference is high may benefit India in the long run.

Also, higher compliance costs nullify the benefits of margin of preference. Thus reducing compliance cost and administrative delays is extremely critical to increase utilization rate of FTAs. Proper safety and quality standards should be set to avoid dumping of lower quality hazardous goods into the Indian market.

Conclusion:

Circumvention of rules of origin should be strictly dealt with by the authorities. Well-balanced FTA deals addressing the concerns of all the stakeholders are the need of the hour.



Discuss how the Automobile Industry slump coincides with an overall economic slowdown of the Industrial Sector that has affected almost all segments of the society?

Timesofindia

Why this question:

The state of the Indian economy is at a worrying situation at present. The GDP growth rate has slipped to 5 per cent in the first quarter of Financial Year 2020, the lowest in over six years. The recent collapse of the automobile sector, the rising Non-Performing Assets, the falling demands of the consumers proves the slowing down of the Indian Economy.

Key demand of the question:

Explain in what way the slowdown in the automobile sector has a multiplier effect on the entire economy.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Comment on the fact that over the past few months, the Automobile Industry is facing a slowdown.

Body:

Explain first the reasons for the slowdown of the overall economy.

Why is there a slowdown in automobile industry? How is it related to Industries and back to all the sectors of the society?

Explain the overall impact on the Industrial Sector due to Slowdown in the Automobile Sector.

Conclusion:

Conclude with suggestions to contain the slowdown and what needs to be done.

The state of the Indian economy is at a **worrying situation** at present. The GDP growth rate has **slipped to 5 per cent** in the first quarter of Financial Year 2020, the **lowest in over six years**.

The recent **collapse of the automobile sector**, the **rising Non-Performing Assets**, the **falling demands of the consumers** proves the slowing down of the Indian Economy.

Over the past few months, the **Automobile Industry is facing a slowdown**. The sale of vehicles across categories in the country slumped badly. The slowing down of the automobile sector resulted in **slowing down of production** as well as **job cuts** in the sector.

Reasons for the slowdown of the Overall Economy:

- Major economic reforms brought about in the recent past like **Demonetization** was brought about in 2016, **GST** was rolled out in July 2017. Just as the effects of these were weaning off the **Infrastructure Leasing & Financial Services triggered** the crisis of Non-Banking Financial sector credit crunch in 2018.
- There is also a **global economic slowdown** that is happening and given the fact that India is a net commodity exporter, there has been a slump in the volumes of exports.
- **Non-Food Inflation** continued to surpass food inflation in the past two years, amounting to income transfer from rural to urban areas.
- The health of real estate sector is also in a bad shape as there is **increasing inventory of unsold properties**.

**Reasons for the slowdown in the Automobile Industry:**

- The primary reason behind the slump in the automobile sector is considered to be the **slowdown of the income growth** and **rising crisis of the Non-Banking Financial Companies (NBFC)**.
- There is a lack of clear migration policy towards **Electric Vehicles (EV)**. This creates confusion among buyers, **deficit monsoon** and **liquidity crunch** in the economy are also contributing towards a reduction in automobile sales.
- There is a **decline in the demand of new vehicles**, which is mainly because of postponement by the consumers in anticipation of an **expected fall in Goods and Service Tax (GST) rates**.
- The consumers also expect that the **transition from Bharat Stage-IV (BS-IV) to BS-VI** may offer to big discounts between January and March 2020.
- There has been significant **growth in pre-owned cars** over the past two years. This shows that the consumer now prefer to invest in a second hand car. This led to **sharp price hikes and fall in the demand** of new vehicles.
- The government increased the official maximum load **carrying capacity of heavy vehicles by 20-25%** with the aim of bringing down logistics costs. This adversely affected the sale of automobiles, particularly commercial vehicles and is believed to have a weightage of 10% in explaining the decline in the auto industry sales.
- Increased availability of **automobile rentals**, **tech-led** disruptions like shared mobility from firms such as Ola and Uber promotes consumers to rent vehicles instead of buying them.

Overall impact on the Industrial Sector due to Slowdown in the Automobile Sector:

- The continuous decline in the sale of automobile has increased the pressure on the manufacturers to **cut down on their costs, and reduce headcounts**.
- The slowdown of the Automobile Sector has resulted in the **laying off of 8-10 lakh contract employees** in recent months in the auto parts sector.
- The permanent employees of the automobile sector are also in a dilemma as there is **not much work in the factories due to poor demand from original equipment manufacturers**. For instance, leading auto parts maker Bosch had to close its factory for five days recently.
- Crisil Ratings has estimated that **tractor makers** would witness 5-7% sales contraction this fiscal. Weak growth in rural income, moderation in rural infrastructure spending, higher channel inventory, and the effect of a high base will lead to de-growth in tractor sales volume.
- The slowdown has resulted in an **8% loss in GST** collection in the first six months of 2019. In order to recover the loss the auto industry will need to grow at a rate of at least 7% in the remaining 6 months of the Financial Year 2020.

Conclusion:

The economic slowdown has affected every section of the society. The slowdown can be contained to some extent by improving credit availability, addressing the pain points in some sectors, and stepping up capital spends.



Fundamental weaknesses in the structure of the economy need to be removed to sustain high growth along with countercyclical policies to boost demand. Explain the role of government in this case.

Indianexpress

Why this question:

The article states that despite the recessionary conditions in the industrialised countries, it may still be possible to pitch for a higher growth in exports. The recent announcements on boosting exports is a recognition of this

Key demand of the question:

Explain in what way fundamental weaknesses in the structure of the economy need to be removed to sustain high growth along with countercyclical policies to boost demand.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In brief discuss the current economy of the country.

Body:

First using statistics explain the issues marring the economy of the country.

Explain – Several sectors such as automobiles and housing are facing a sharp weakening of demand. And there has been a significant fall in the savings and investment rate. Within household savings, the proportion of savings in financial assets has sharply declined.

Discuss what measures need to be taken to overcome this challenge.

Conclusion:

Conclude with way forward.

India's GDP growth rate slowed down to 5 per cent in Q1 of FY20 and is expected to be around 6 per cent or below in this financial year.

- As former Reserve Bank of India governor Y V Reddy mentioned recently, a combination of cyclical and structural factors have been responsible for the slowdown.
- Global uncertainties have added to the problem.
- In the last few weeks, the government has announced several measures to improve both consumption and investment in different sectors and for the economy as a whole.
- The announcement of reduction in corporate tax rates announced recently may help in reviving the sentiments of the private sector but the tax revenue may also decline and put pressure on fiscal deficit. But, these measures alone may not help in getting higher growth.

Structural issues to be tackled-

- We need to focus on **three structural issues:**
- Physical **infrastructure development,**
- **Raising human capital** and
- **Revival of rural economy** for a long-term growth of 7 to 8 per cent and attaining \$5 trillion economy by 2024.

**Infrastructure Development-**

- Spending on infrastructure will have multiplier effects in the overall economy including stimulating private investment, aggregate demand and jobs.
- Construction sector was an important source of job creation during 2004-05 to 2011-12. This sector has to be revived in order to create growth and employment.
- The government seems to be fast tracking public capex, encouraging public sector enterprises (PSEs) to invest more and trying to clear the pending bills for the corporate sector and MSMEs.
- The announcement of Rs 100 lakh crore over five years for infrastructure by the government is an important measure.
- The Vijay Kelkar committee's recommendation on PPPs would be useful. The private sector's role is equally important.

Raising human capital for higher growth

- Health and education achievements are essential for human capital. Yet the country's progress on both these aspects leaves much to be desired
- The Niti Aayog says that only 2.3 per cent of Indian workers have formal skill training compared to 70 to 80 per cent in other countries.
- Promotion of technology and knowledge economy will add to growth. One can't have a "demographic dividend" for growth with low human capital.
- Women's labour participation rates have been low and declining. Raising women's human capital and participation rates can improve economic growth.
- We may also not achieve high human capital and productivity with 40 per cent of our children suffering from malnutrition.

Revival of rural economy

- 70 per cent of our population lives in rural areas and has stagnant incomes and wages.
- There is a need for revival of the rural economy with infrastructure investment and structural reforms.
- Agricultural marketing reforms should be a priority.
- For better price discovery, agriculture has to go beyond farming and develop value chains comprising farming, wholesaling, warehousing, logistics, processing and retailing.
- Agricultural exports should be promoted with various policies. Similarly, rural infrastructure and water management are other priorities.
- Stimulus and structural reforms can raise farmers' prices and wages and rise in demand for manufacturing and services.

Suggestions:

- Lower GST and local taxes, as high as 28 % . Like for both tobacco and automobiles.



- Boost private investment- Thru international MOUs , like petro net and tellurian.
- Give sops like tax reduction for consumers to have higher disposable income.
- Experiment on small scale other viable options like, tax free income for low income women.
- Giving preference to infrastructure over capital expenditure.
- Taking measures to boost rural demand and unorganized sector which forms 90 % of the workforce.

Recent steps like rolling back of surcharges, merger of banks can give short term gains, but long term requires bringing structural changes.

Inclusive growth and issues arising from it.

Can India Achieve the UN Goal Of Gender Equality By 2030? What are the steps and measures that can be taken on-ground to determine the way forward?

Reference

Why this question:

A report compiled by Equal Measures 2030, found that not a single country is on track to achieve gender equality by 2030; India ranked 95th out of 129 countries. Thus makes it important for us to analyse the UN goal of gender equality by 2030.

Key demand of the question:

One has to elucidate on the progress being made by India on gender equality front. Discuss the challenges and concerns associated while suggesting way forward.

Structure of the answer:

Introduction:

In brief throw light on the UN goal of gender equality by 2030.

Body:

Since gender inequality constitutes one of the history's most persistent and widespread forms of injustice, eliminating it will call for one of history's biggest movements for change. Women and girls continue to suffer discrimination and violence in every part of the world.

Explain the Indian scenario.

Why is gender equality important? Its relationship with development of the country?

UN Goal 5 and India – quote facts and explain the current status of India.

Discuss solutions on this front.

Conclusion:

Conclude with need for holistic and multi-pronged approach.

Gender equality is not only a fundamental human right, but a necessary foundation for a peaceful, prosperous and sustainable world.

A report compiled by Equal Measures 2030, found that not a single country is on track to achieve gender equality by 2030; India ranked 95th out of 129 countries. To achieve gender equality, models and solutions need to create an enabling environment targeting gender inequality, especially gender-based violence (GBV). This creates equal access to opportunities and resources for women and girls in India. Effective programs have put women at the centre of the programming.

The Ministry of Statistics and Programme Implementation noted that 25% of recorded cases under crimes against women are related to sexual assault. Violence functions as a mechanism to maintain existing power inequalities, especially to subjugate women. Gender-based violence (GBV) is founded



in this unequal power-relations between men and women. It prevents women from achieving their full potential. But GBV cannot be attributed to any single factor. Therefore, strategies to prevent gender-based violence must be grounded in programmes and interventions that promote gender equality as the ultimate goal.

India scored 56.2 out of 100 in the study that led to the report, with 100 being absolute gender equality. Our country is not alone in falling short—none of the UN member states is on track to achieve gender equality by 2030. Moving beyond binaries, India has a long way to go in terms of mainstreaming equality for all.

However, there is good news. Different legislative acts enable safety, security and justice such as POSH—which is the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013, Dowry Prohibition Act, 1961 and more. The role of civil society becomes critical to witness the realization of the goal and subsequently, better ranking in the Gender Index.

What are the steps and measures that can be taken on-ground to determine the way forward?

Only 25.5% of women participate in the workforce compared to 53.3% of males. The approach to achieving gender equality and therefore providing space for girls and women to fulfill their aspirations, requires an ecological framework that promotes gender equality at the heart of every design, be it policy or programme. It needs to address the complex interplay of factors that operate at the individual, relationship, community and greater societal level. Besides, women are not a homogenous group. Intersecting social identities such as sexual orientation, gender identity, caste and socio-economic status render some women even more vulnerable to violence. This necessitates a nuanced and holistic approach to preventing gender-based violence.

The approach can be translated on-ground to create sustained solutions in varied ways:

- Increasing women's economic independence through improving financial literacy, access to financial services and assisting women to develop their employment prospects.
- Working with vulnerable populations to enable the realization of sexual and reproductive health and rights.
- Skill development through life skills education for low-income women equipping them with knowledge, skills and an understanding of their rights and entitlements enabling them to manage their lives better.
- Working on challenging socially constructed gender norms rooted in patriarchy that result in harm to all genders binary and non-binary (LGBTQAI+).
- Improving the prevention of violence and violence response systems through community-based mechanisms and concerted sensitisation mechanisms.
- Supporting the meaningful involvement of women and men affected by gender-based violence in the design and delivery of services and the advocacy and policy response through the provision of technical assistance.

It is essential to not only ensure women and girls are free from violence but that they have the agency, autonomy and self-determination to reach their potential and lead lives they value. But it cannot be done with a single solution.



Factory-based supported programmes like HERrespect, Women in Factories etc., with brands and their supply chain factories focus on the development of a gender-sensitive work environment and robust workplace systems to address women's issues, including sexual harassment and discrimination.

Conclusion:

When we collaborate across the board with every stakeholder to combine different approaches to provide an intelligently designed holistic solution, we arrive at the cusp of a breakthrough, making on-ground implementation smoother and robust.

Ongoing campaigns in the media and concerted efforts at policy and legislature echo the sentiment of pushing through for a gender-equal world. Together, these, along with a plethora of micro approaches and varied collaborations, hold the promise of ecology where women and girls thrive.

Empowering women does not just benefit her as an individual but her entire community. The United Nations states the economic impact of achieving gender equality in India is estimated to be U.S. \$700 billion of added GDP by 2025.

Major crops cropping patterns in various parts of the country, different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers

What is ZBNF? What are the benefits and how is it better than organic farming?

Elucidate.

[The hindubusinessline](#)

Why this question:

The article analyses in detail the effect of ZBNF and the effect of recent promotion of the concept in the annual Budget of the country.

Key demand of the question:

One must discuss the concept of ZBNF in detail and discuss its importance to Indian agriculture system.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Define the concept in brief.

Body:

Explain what is ZBNF in detail – It involves the application of nature's principles in farming. It practices no-till, no chemical use in farming. Alongside, dispersal of clay seed balls to propagate plants is done. Explain the key aspects of it.

Discuss the advantages it holds, benefits and in what way it is better than organic farming; with examples/case studies of some successful states.

Conclusion:

Conclude that the dominant paradigm of chemical-based agriculture has failed and regenerative agriculture is the emerging new science.

Zero Budget Natural Farming (ZBNF), which is a set of farming methods, and also a grassroots peasant movement, has spread to various states in India. It has attained wide success in southern



India, especially the southern Indian state of Karnataka where it first evolved. ZBNF inspires a spirit of volunteerism among its peasant farmer members, who are the main protagonists of the movement.

The four pillars of ZBNF:

Microbial culture: It provides nutrients, but most importantly, acts as a catalytic agent that promotes the activity of microorganisms in the soil, as well as increases earthworm activity; During the 48 hour fermentation process, the aerobic and anaerobic bacteria present in the cow dung and urine multiply as they eat up organic ingredients (like pulse flour). A handful of undisturbed soil is also added to the preparation, as inoculate of native species of microbes and organisms. It also helps to prevent fungal and bacterial plant diseases.

Treatment of seeds, seedlings or any planting material: It is effective in protecting young roots from fungus as well as from soil-borne and seed borne diseases that commonly affect plants after the monsoon period.

Mulching: Soil Mulch: This protects topsoil during cultivation and does not destroy it by tilling. It promotes aeration and water retention in the soil. Straw Mulch: Straw material usually refers to the dried biomass waste of previous crops; it can be composed of the dead material of any living being.

Moisture: it is a necessary condition for the roots of the plants.

It is, basically, a natural farming technique that uses biological pesticides instead of chemical-based fertilizers. Farmers use earthworms, cow dung, urine, plants, human excreta and such biological fertilizers for crop protection. Intercropping and Contour Bunds are some of the techniques of ZBNF. It reduces farmers' investment. It also protects the soil from degradation.

ZBNF works not just in agronomic terms, but also brings about a variety of social and economic benefits. ZBNF brings improvements in yield, soil conservation, seed diversity, quality of produce, household food autonomy, income, and health.

Benefits:

- In ZBNF, yields of various cash and food crops have been found to be significantly higher.
- E.g. yields from ZBNF plots were found on average to be 11% higher for cotton than in non-ZBNF plots.
- The yield for Guli ragi (ZBNF) was 40% higher than non-ZBNF.
- Input costs are near zero as no fertilizers and pesticides are used.
- Profits in most areas under ZBNF were from higher yield and lower inputs.
- Model ZBNF farms were able to withstand drought and flooding.
- Notably these are the serious emerging concerns with regard to climate change.
- Planting multiple crops and border crops on same field provides varied income and nutrient sources.
- Overall, there is



- ✓ reduced use of water and electricity
- ✓ improved health of farmers
- ✓ flourishing of local ecosystems and biodiversity
- ✓ no toxic chemical residues in the environment
- ✓ improvements in soil, biodiversity, livelihoods, water
- ✓ climate resilience
- ✓ women's empowerment and nutrition

How is ZBNF better than organic farming?

- Organic agriculture often involves addition of materials required in bulk and has to be purchased.
- These are large amounts of manure, vermicomposting and other materials.
- These turn out to be expensive for most small farm holders.

The programme can have a positive effect on many of the sustainable development goals. As ZBNF is applied in India's various agro-ecological zones, making farmers the innovators is essential. Agricultural scientists in India have to rework their strategy so that farming is in consonance with nature. The dominant paradigm of chemical-based agriculture has failed and regenerative agriculture is the emerging new science.

Discuss the importance of reviving and managing indigenous species and agricultural practices in India.

Reference

Why this question:

The question aims to analyse the importance of reviving and managing indigenous species and agricultural practices in India amidst rising use of HYV seeds, chemical inputs etc. that have been eroding the soil fertility and leading to unsustainable agriculture.

Key demand of the question:

The question is straight forward and aims to analyse the importance of reviving and managing indigenous species and agricultural practices in India.

Directive:

***Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.*

Structure of the answer:

Introduction:

In brief quote data suggesting current unsustainable agriculture practices.

Body:

Explain what are the practices available for reviving and managing indigenous species and agricultural practices in India.

Discuss the pros and cons.

List out the benefits ranging from – ecological, socio-economic etc.

Suggest policies by the government in this direction.

Conclusion:

Conclude with way forward.



“Everything else can wait, but not agriculture”- Jawaharlal Nehru, 1947.

Agriculture is the most important enterprise in the world. Agriculture is the process of producing food, feed, fiber and other desired products by the cultivation of plants and the raising of domesticated animals. In a true sense, it is a productive unit where human get the free gifts of nature namely, land, light, air, temperature, rain water, humidity etc. are integrated into a single primary unit indispensable for human beings.

The effect of prolonged and over usage of chemicals in crops production has resulted in human health hazards and pollution of environment and ground water. At present, the issue is whether to continue with the chemical inputs-based intensive technologies or to go back to the traditional environment friendly farming practices like organic farming for sustainable production, income and socio-economic development of the farming community. In this context that biological pesticides are being considered as environmentally safe, selective, biodegradable, economical and renewable alternative for use in organic farming system.

Green Pesticides or ecological pesticides which are believed to be environmentally friendly and thus cause less harm to the eco system and animal health. In agrology, pesticides are evaluated for minimal average environmental effects. Biocides include germicidal, antibiotic, antibacterial, antiviral, antifungal, antiprotozoals and antiparasites. Pesticides typically come in the form of sprays and dusts. Many ecological pesticides are biological pesticides.

Environmental friendly agricultural technologies for food safety appropriate technologies, which do not assault the nature, would have key roles to play in ensuring food security, in improving human health and in rehabilitating and conserving the environment to safeguard the well-being of the posterity. Instead of striving for more “green revolutions” with emphasis on miracle seeds, hard-hitting, synthetic and engineered pesticides and increased use of fertilizers, the future must look to natural ways and processes for augmenting agricultural productivity.

Over the centuries, indigenous peoples have provided a series of ecological and cultural services to humankind. The preservation of traditional forms of farming knowledge and practices help maintain biodiversity, enhance food security, and protect the world’s natural resources.

Different types of Indigenous agricultural practices:

Agroforestry: Agroforestry involves the deliberate maintenance and planting of trees to develop a microclimate that protects crops against extremes. Blending agricultural with forestry techniques, this farming system helps to control temperature, sunlight exposure, and susceptibility to wind, hail, and rain.

Crop Rotations: The principles of crop rotation have been successfully used for thousands of years in agriculture and are still used today. Crop rotation is the practice of growing different crops on the same land so that no bed or plot sees the same crop in successive seasons. It is a practice designed to preserve the productive capacity of the soil, minimize pests and diseases, reduce chemical use, and manage nutrient requirements, all of which help to maximize yield. The practice of crop rotation builds better soil structure and increases the ability to store carbon on farms.

Mixed-/Inter-cropping: Mixed cropping, also known as intercropping is a system of cropping in which farmers sow more than two crops at the same time. By planting multiple crops, farmers can



maximize land use while reducing the risks associated with single crop failure. Intercropping creates biodiversity, which attracts a variety of beneficial and predatory insects to minimize pests and can also increase soil organic matter, fumigate the soil, and suppress weed growth.

Polyculture: Polyculture systems involve growing many plants of different species in the same area, often in a way that imitates nature. By increasing plant biodiversity, Polyculture systems promote diet diversity in local communities, are more adaptable to climate variability and extreme weather events, and are more resilient to pests and diseases. Polycultures are integral to permaculture systems and design and provide many advantages such as better soil quality, less soil erosion, and more stable yields when compared to monoculture systems.

In fact, all development efforts and activities should be within well-defined ecological rules rather than within narrow economic gains. Sustainable agricultural systems must be ecologically sound for long-term food sufficiency, equitable in providing social justice, and ethical in respecting path future generations and other species.

Issues related to direct and indirect farm subsidies and minimum support prices; Public Distribution System- objectives, functioning, limitations, revamping; issues of buffer stocks and food security; Technology missions; economics of animal-rearing.

Do you think the government must create a GST-type council for agriculture reforms and realize the implementation of agri-marketing reforms and to transfer agri-input subsidies directly to beneficiaries' accounts through Aadhaar? Discuss.

[Indianexpress](#)

Why this question:

The article highlights agrarian reforms taken forward by the late parliamentarian Sri Arun Jaitley and brings out the need for GST –type council for agriculture reforms in the country.

Key demand of the question:

One must discuss.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief narrate what are agriculture reforms? Why is there a dire need of them in the country.

Body:

Discuss the various agrarian reforms brought in ranging from subsidies to direct cash transfer. Explain in what way agri-policies impact Indian farmers, agriculture, food security, natural resources, especially water and soil, etc.

Discuss that Indian agricultural policies have an inherent consumer bias, and that input subsidies related to fertilisers, power, irrigation, interest subvention, etc do not promote efficiency in their use. Instead, they are creating several environmental problems like groundwater depletion.

Conclusion:

Conclude with way forward.

Agriculture is the backbone of our economy as it contributes ~15% of GDP, 50% population are employed in this sector. But the growth rate is 2.1 % only. In the words of MS Swaminathan "if



agriculture fails everything else fails". According to former finance minister Arun Jaitley - highest pay off from economic reforms after GST is to come from agriculture.

Problems in agriculture sector

The master problem is farmers' are not getting sufficient income from agriculture. This is due to -

- Syncing size of operational land holding and land degradation.
- Market instability.
- Regressive last like essential commodity act and APMC act.
- Very low penetration of Crop Insurance and formal credit to Agricultural sector.
- Agricultural policies have an inheritance consumer bias.

Reforms till date

- Land Reforms abolition of zamindari, land ceiling and land redistribution
- Tenancy law reforms
- Model APMC act by Centre and launch of e National agricultural market
- Announcement of MSP PDS and price stabilization scheme laxing of FDI norms in food processing industries
- Subsidies on agricultural input like fertilizer electricity irrigation etc. (led to unjustified use of groundwater and fertilizers and cost groundwater depletion soil salinization and eutrophication in nearby water bodies).
- Direct Benefit Transfer (DBT) through the Jan Dhan Aadhar Mobile (JAM)
- Pradhan mantri Krishi sinchai Yojana(PMKSY) and Pradhan mantri fasal Bima Yojana(PMFBY).

Why GST type council for agri reform is required?

- Agriculture is a **state subject**, therefore any Reform initiated by Centre must get States not to get implemented and bear fruits (Cooperative federalism is must)
- GST (biggest tax reform since 1947) is the greatest example of **cooperative federalism**
- In GST Council **all the states and the Centre sit together** to take policy decisions for implementation of GST.
- Therefore, **GST like Council** must be created to gain full cooperation of states in implementation of Agricultural reforms like agriculture market reforms and implementation of DBT
- It will create **one national market** for agricultural, minimize subsidy leakage, and improve agricultural efficiency.
- It will **shift policy inclination** from consumer bias towards farmer side.
- Ultimately it will realize **doubling of farmer income** by 2022.

Challenges

- Extra financial burden on state for implementing this



- All state may not have the same level of expertise to go for the reforms like land leasing, together.
- State may be reluctant to part their power with Centre.

Conclusion

Centre must be ready to increase the state share in devolution of sharable tax, in order to convince them to give up some of their autonomy in national interest.

Financing is of critical concern to the Indian agricultural sector. Discuss how providing interest subvention to small and marginal farmers through Direct Benefit Transfer allows them to get access to institutional credit more efficiently.

Financialexpress

Why this question:

The recent studies made by RBI found that while livestock, forestry, and fisheries contributed around 38-42% of agriculture output during 2014-16, this sector got just 6-7% of total agriculture credit; clearly, this is an issue that needs addressing. Thus it is important for us to analyse Why it is good idea to give farmers interest-subvention via DBT.

Key demand of the question:

One has to discuss the pros and cons of Interest subvention to deal with the agrarian crisis plaguing the country and in what way it can be bridged by choosing the DBT route.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief define what interest subvention in agriculture financing is.

Body:

Explain the following aspects –

Bring out the Positives: Increase of formal loan system, Increase in financial inclusion, Decrease in interest rates of money-lenders, Decrease in farmers distress due to availability of loan for agriculture on lesser rates of interest etc.

Then explain any negatives – Big farmers gets most of the benefit as scheme do not differentiate b/w small and big farmers, Net loan value is more than the entire agriculture input gives sign of diversion of funds, Though net loan value has increased, farmers income goes down, No substantial increase in production etc.

Conclusion:

Conclude that An income based policy should be used wherein the money is directly transferred to the farmers Aadhaar linked accounts. This will ensure better targeting and plug leakages. A subsidy income package can be designed on a per hectare basis, with higher rates for small landholders. Banks must be quickly compensated to prevent overburdening. Budgetary allocations can be improved.

An average Indian farmer, who has to work on an uneconomic holding', using traditional methods of cultivation and being exposed to the risks of a poor agricultural season is almost always in debt. He is a perennial debtor.



Once the farmer falls into debt due to crop failure or low prices of crops or malpractices of moneylenders he can never come out of it. In fact, large part of the liabilities of farmers is 'ancestral debt'. Thus, along with his landed property, he passes on his debt to the next generation.

There are four main causes of rural indebtedness in India:

- (i) Low earning power of the borrower,
- (ii) Use of loan for unproductive purposes,
- (iii) Very high rate of interest charged by the village moneylender and
- (iv) The manipulation of accounts by the lenders.

In a few cases, the bad habits of the farmers (such as gambling, drinking, etc.) are responsible for his burden of 'unproductive' debt. However, in most cases, the cause of the debt may be some expensive social ceremony which the farmer was perhaps forced to "arrange for fear of a social boycott".

Need for Finance:

- Finance is required by farmers not only for the production and marketing of crops but also to keep a stagnant agricultural economy alive. Most Indian farmers live near the brink of starvation. A bad monsoon, a poor harvest, an accident or illness in the family forces him to approach the moneylender for a loan. In India, there is the prevalence of such 'distress' or unproductive loans. Agricultural finance in India is not just one requirement of the agricultural business but a symptom of the distress prevailing among the majority of the farmers.
- Rural credit includes not only credit provided to farmers but also credit extended to artisans, owners of small and medium industries in rural areas, small transport operators and so on. Two main sources of rural credit are private and institutional. The former includes private moneylenders, traders and commission agencies, relatives and landlords.
- The sources of institutional credit are rural co-operatives, commercial banks, particularly the State Bank of India (SBI). And, with the setting up of a specialized institution called the National Bank for Agricultural and Rural Development (NABARD) the Agricultural Refinance and Development Corporation (ARDC) has ceased to exist. Up to 1982 it was responsible for extending agricultural finance under guidance of the Reserve Bank of India.
- It may also be noted that the short- and medium-term credit requirements of the farmers is met by indigenous bankers or village moneylenders, co-operative credit societies and commercial banks. Long-term credit needs are met by land development banks and NABARD.
- The principal aim of institutional credit is to replace the widely prevalent money-lending at a very high rate of interest. Available data show that the rural credit institutions have succeeded to a considerable extent in achieving this aim.

Salient features and benefits of Interest subvention scheme:

- The objective of the scheme is to make available agricultural credit for Short Term crop loans at an affordable rate. The scheme is expected to boost agricultural productivity and production in



the country. Under this scheme, farmers will be given a short term crop loan up to Rs. 3 lakh payable within one year at an interest rate of 4% per annum.

- The scheme will be continued for 1 year and will be implemented by NABARD and RBI. The interest subvention will be provided to Public Sector Banks (PSBs), private Sector Banks, Cooperative Banks and Regional Rural Banks (RRBs) and to NABARD for refinancing to RRBs and Cooperative Banks.
- Interest subvention of 5% per annum will be provided to those farmers who pay the short term crop loan in time. Farmers will have to electively pay only 4% as interest. For farmers who do not pay crop loan in time the interest subvention of only 2% will be applicable as against 5% available above.
- This institutional credit is expected to demotivate farmers from taking loans from non-institutional sources of credit at high rates of interest.

Examine the role of “reducing food loss and waste” in achieving sustainable development goals. Also, discuss the role of women in reducing food loss and waste and suggest different approaches to the same.

Reference

Why this question:

The question aims to ascertain the role of “reducing food loss and waste” in achieving sustainable development goals. And key role played by women in addressing the same.

Key demand of the question:

One must explain in detail the role of women in managing the global food losses and wastes and in what way it is necessary to achieve SDGs.

Directive:

Examine – When asked to ‘Examine’, we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

In brief describe the Food Loss and Waste that is occurring globally.

Body:

Explain how “reducing food loss and waste” performs against the sustainable food future criteria.

State the possible approaches to save the food that can be taken.

Discuss the role of women in reducing food loss and waste.

Conclusion:

Conclude that a “war on waste” has yet to be waged when it comes to food. Given that food prices recently hit historic highs and global food demand continues to rise, now is the time.

“Food loss and waste” refers to the edible parts of plants and animals that are produced or harvested for human consumption but that are not ultimately consumed by people. “Food loss” refers to food that spills, spoils, incurs an abnormal reduction in quality such as bruising or wilting, or otherwise gets lost before it reaches the consumer.

Food loss is the unintended result of an agricultural process or technical limitation in storage, infrastructure, packaging, or marketing.

“**Food waste**” refers to food that is of good quality and fit for human consumption but that does not get consumed because it is discarded—either before or after it spoils. Food waste is the result of negligence or a conscious decision to throw food away.

**Key facts:**

- Significant amounts of food are lost or wasted every day, in every country, and at every stage in the supply chain, from the farm to household.
- According to an estimate by the Food and Agriculture Organization of the United Nations (FAO), about one-third of food produced is lost or wasted globally, which is approximately 1.3 billion tones.
- One out of every four food calories intended for people is not ultimately consumed by them.
- Costs aside, food loss has significant impacts on food security, environmental conservation, and climate change.
- It is estimated that saving one-fourth of the food currently lost or wasted globally would be enough to feed 870 million hungry people in the world, of which the highest number are in India.
- How “Reducing Food Loss and Waste” will play a crucial role in achieving sustainable development goals across the globe.

Possible Approaches to save the food:

- **Food redistribution:** Food redistribution or donation programs are a method for reducing both food loss and waste. As used here, “food redistribution” means voluntarily giving away food that otherwise would be lost or wasted to recipients such as food banks, which then redistribute the food to those who need it.
- **Evaporative coolers:** Evaporative coolers extend the shelf life of food and avoid spoilage by keeping food at lower-than-room temperatures without having to use electricity. This low-cost, low-energy technique provides an opportunity to store perishable foods longer in areas that lack electricity infrastructure or that has low-income farmers.
- **Plastic storage bags:** Damage from pests is a major source of food loss during the handling and storage phase of the supply chain. Take cowpeas for instance. The crop is important for many smallholder farmers due to the cowpeas’ ability to adapt to dry, hot conditions.
- **Small metal silos:** Small metal silos, which are intended for use by one farmer or by one household and generally hold between 250–1000 kg of crops, can be an effective strategy for reducing food loss at the storage stage, especially for cereals and pulses. Insufficient storage is a major source of food loss for farmers, especially in developing countries, where storage structures often do not keep harvested crops in hermetic or airtight conditions.
- **Plastic crates:** Using plastic crates instead of other forms of containerization has demonstrated significant reductions in food losses during handling and storage, particularly among fruits, vegetables, and other forms of fresh produce. In developing countries, 19 percent of fruit and vegetable loss occurs in the handling and storage stage of the food value chain.
- **Food date labelling:** Dates provided on the packaging of food and drinks, such as “use-by,” “sell-by,” and “best before,” is intended to provide consumers with information regarding the freshness and safety of foods. However, these seemingly simple dates can actually confuse



consumers about how long it is safe for them to store food and when they should dispose of uneaten items.

- **Consumer awareness campaigns:** Consumer attitudes and behavior play a large role in determining the amount of food that is wasted in households. Although changing the way people consume and throw out food can be difficult, communication campaigns can help influence consumer behavior at the household level.
- **Reduced portion sizes:** For restaurants and other food service providers, food portion sizes can dictate the amount of food waste that occurs within the four walls of their business, since larger portions increase the likelihood that a consumer will not consume all of the food purchased. Reducing portion sizes for consumers in both direct and indirect ways can both decrease food waste and save money for food providers.

The Role of Women in Reducing Food Loss and Waste:

- Women in both developing and developed countries have an important role to play in reducing food loss and waste, since women interact with food at each stage of the value chain from farm to fork.
- Close to the farm, women comprise 41 percent of the agricultural workforce worldwide and make up the majority of agricultural workers in South Asia and Sub-Saharan Africa.
- Close to the fork, surveys in a wide range of countries show that women are responsible for 85-90 percent of the time spent on household food preparation. Therefore, targeting women in food loss and food waste reduction campaigns could result in greater reductions than pursuing an unfocused campaign.
- One such gender-targeted initiative in Tanzania focused on providing female farmers with greater access to markets and supplied participants with access to solar drying technology that allowed for surplus fruits that might otherwise be lost to be dried and preserved.
- Another campaign in Australia called “1 Million Women” encourages women to take action on a number of environmental issues, including reducing food waste. The campaign has hosted events with a celebrity chef to raise awareness of food waste, and its official website provides tips on how to reduce waste and recipes for how to efficiently use food.

Conclusion

An amazing 24 percent of all food calories grown today are lost or wasted between the farm and the fork. This fact is ultimately a failure of economic and natural resource efficiency. The world faced an analogous failure of efficiency in the 1970s with energy. In the face of record oil prices and growing demand, the world essentially declared war on energy wastefulness and significantly improved its energy efficiency.

Yet a “war on waste” has yet to be waged when it comes to food. Given that food prices recently hit historic highs and global food demand continues to rise, now is the time.

Write a note on Participatory Guarantee Scheme. Explain in what way it incentivises farmers to grow organic food along with the advantages and limitations of the scheme.

[Indianexpress](#)

**Why this question:**

Recently The head of India's food safety regulator stated that the Union Agriculture Ministry's Participatory Guarantee Scheme (PGS) is expected to incentivise more farmers to grow organic food.

Key demand of the question:

One must discuss in detail the key features of Participatory Guarantee Scheme. Explain in what way it incentivises farmers to grow organic food along with the advantages and limitations of the scheme.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:**Introduction:**

In brief explain why the scheme was put in place.

Body:

Union Agriculture Ministry's PGS is a process of certifying organic products, which ensures that their production takes place in accordance with laid-down quality standards.

Discuss the salient features of the scheme.

Explain what are the associated benefits to it, especially for farmers to grow organic food.

Discuss the advantages of PGS and limitations.

Conclusion:

Conclude with way forward.

Participatory Guarantee Scheme is a process of certifying organic products, which ensures that their production takes place in accordance with laid-down quality standards. The certification is in the form of a documented logo or a statement. PGS is an internationally applicable organic quality assurance initiative that emphasizes the participation of stakeholders, including producers and consumers, and operates outside the framework of third-party certification. PGSs are "locally focused quality assurance systems" that "certify producers based on active participation of stakeholders and are built on a foundation of trust, social networks and knowledge exchange".

PGS, according to the definition, is "a process in which people in similar situations (in this case small holder producers) assess, inspect and verify the production practices of each other and take decisions on organic certification".

Four pillars of PGS

The government's 2015 PGS manual underlines that the system in India is based on "participatory approach, a shared vision, transparency and trust".

PARTICIPATION

Stakeholders such as producers, consumers, retailers, traders, NGOs, Gram Panchayats, and government organizations and agencies are collectively responsible for designing, operating, and decision-making.

Direct communication among the stakeholders helps create an integrity- and trust-based approach with transparency in decision-making, easy access to databases and, where possible, visits to farms by consumers.

SHARED VISION



Collective responsibility for implementation and decision making is driven by a common shared vision.

Each stakeholder organization or PGS group can adopt its own vision conforming to the overall vision and standards of the PGS-India programme.

TRANSPARENCY

At the grassroots level, transparency is maintained through the active participation of producers in the organic guarantee process.

It can include information-sharing at meetings and workshops, peer reviews, and involvement in decision making.

TRUST

A fundamental premise of PGS is the idea that producers can be trusted, and that the organic guarantee system can be an expression and verification of this trust.

The mechanisms for trustworthiness include a producer pledge made through a witnessed signing of a declaration, and written collective undertakings by the group to abide by the norms, principles and standards of PGS.

Advantages of PGS

- Among the advantages of PGS over third-party certification, identified by the government document, are:
- Procedures are simple, documents are basic, and farmers understand the local language used.
- All members live close to each other and are known to each other. As practicing organic farmers themselves, they understand the processes well.
- Because peer appraisers live in the same village, they have better access to surveillance; peer appraisal instead of third-party inspections also reduces costs
- Mutual recognition and support between regional PGS groups ensures better networking for processing and marketing.
- Unlike the grower group certification system, PGS offers every farmer individual certificates, and the farmer is free to market his own produce independent of the group.

Limitations

- PGS certification is only for farmers or communities that can organise and perform as a group within a village or a cluster of continuous villages.
- It is applicable only to farm activities such as crop production, processing, and livestock rearing, and off-farm processing “by PGS farmers of their direct products”.
- Individual farmers or group of farmers smaller than five members are not covered under PGS.
- They either have to opt for third party certification or join the existing PGS local group.



PGS ensures traceability until the product is in the custody of the PGS group, which makes PGS ideal for local direct sales and direct trade between producers and consumers.

Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

Discuss the challenges and opportunities in India's domestic civil aviation sector by bringing out the recent policy interventions.

Financialexpress

Why this question:

The question aims to comment upon the challenges and the opportunities of the domestic aviation sector in the country.

Key demand of the question:

Explain the challenges and opportunities in India's domestic civil aviation sector by bringing out the recent policy interventions.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Introduce by mentioning about the current situation of civil aviation sector in India.

Body:

Explain the aspects of – the opportunities and challenges faced by the sector.

Importance of aviation sector and the need to provide policy support to the sector.

Discuss in depth the policies and various initiatives that are in place to harness the potential of aviation sector such as UDAN, Nabh Nirman etc.

Conclusion:

Conclude with way forward.

Despite the fact that the Indian civil aviation industry is currently considered the third largest domestic civil aviation market in the world, the industry is suffering from several problems.

India's passenger traffic grew at 16.52 per cent year on year to reach 308.75 million (12.72 per cent). Domestic passenger traffic grew around 18.28 per cent to reach 243 million in 2018-19 and is expected to become 293 million in 2020. When it comes to International passengers, it grew by 10.43 per cent to reach 65 million in 2018 and traffic is expected to become 76 million in 2020. In 2018-19, domestic freight traffic stood at 1,213.06 million tonnes, while international freight traffic was at 2,143.97 million tonnes. India's domestic and international aircraft movements grew 14.40 per cent and 9.40 per cent to 1,886.63 thousand and 437.93 thousand during 2017-18. Number of commercial aircraft in India is around 550.

Problems of aviation sector:

- The **rupee depreciation** is hitting carriers hard. About 25-30% of their costs, excluding fuel, are dollar denominated—from aircraft lease rents and maintenance costs to ground handling and parking charges abroad.
- **Aviation turbine fuel (ATF)** prices constitute about 40% of costs for an Indian carrier and are taxed higher here than anywhere else in the world. The Centre charges 14% excise duty on ATF. The states pile on their own sales tax that can go as high as 29%.



- The **intense competition among domestic carriers**, the need to capture a slice of the ever expanding market and passenger price sensitivity makes the airlines difficult to raise ticket prices.
- The new civil aviation policy (NCAP) 2016's regional connectivity scheme doesn't help. The ticket price caps it imposes under the scheme, the fact that the viability gap funding will last only for three years and various operational issues such as the lack of slots for connecting flights at major airports are a hindrance.
- Rules such as **route dispersal guidelines (RDG)** that mandate airlines to fly a certain percentage of flights in smaller, unprofitable air routes is archaic in nature.
- The projected growth in capacity, because of plane orders, will lead to a 14% shortfall in commander pilots, a part of which will have to be fulfilled by more expensive expatriates, leading to a rise in the wage bill, the second biggest cost chunk after fuel.

Government Initiatives

- Allocation to Civil Aviation Ministry has been increased to Rs 6,602.86 crore (US\$ 1,019.9 million) under Union Budget 2018-19.
- The government has launched the construction of Navi Mumbai airport which is expected to be built at a cost of US\$ 2.58 billion. The first phase of the airport will be completed by the end of 2019.
- The Government of Andhra Pradesh is planning to develop Greenfield airports in six cities- Nizamabad, Nellore, Kurnool, Ramagundam, Tadepalligudem and Kothagudem under the PPP model. Rs 15,000 crore (US \$ 2.32 billion) will be invested in 2018-19 for expanding existing terminals and constructing 15 new ones.
- Presently India has 5 PPP airports each at Mumbai, Delhi, Cochin, Hyderabad and Bengaluru, which together handle over 55 per cent of country's air traffic.
- Government of India has approved 15 Greenfield PPP projects which are expected to increase the air traffic in India. These projects would be setup in Goa, Navi Mumbai, Maharashtra, Bijapur, Gulbarga, Karnataka, Kerala, West Bengal, Madhya Pradesh, Sikkim, Puducherry and Uttar Pradesh.
- National Civil Aviation Policy, 2016 (NCAP, 2016): The policy focuses on creating safe, secure, affordable and sustainable air travel that can be accessed by the masses across India.

Way Forward:

- As Indian aviation market continues to surge, focus should be ensuring adequate airport infrastructure capacity.
- The Air Navigation Services (ANS) unit of the AAI operates communication, navigation, surveillance and traffic management systems for aircraft operating in Indian airspace. With ever increasing busy airspace, it is of paramount importance to ensure that ANS can continue to provide aviation safety.



- The MRO industry in India holds great potential. It is important to ensure that the industry is regulated properly, and that the required skills are developed to service increasingly sophisticated aircraft
- More transparent ATF regime should be ensured where oil marketing companies are required to declare costs and methods used to price the end product.
- Excessive concentration of power in the DGCA should be checked to ensure proper competition and economic viability of the sector.

Conclusion

India's aviation industry has a huge potential and offers huge growth opportunities. One of the key factors which favour such an expectation is that 40 per cent of the upwardly mobile middle class are starting to prefer air travel as the perfect mode of transport. So government must engage and collaborate with industry stakeholders to implement efficient and rational decisions that would enable the growth of India's civil aviation industry. With the right kind of infrastructure and policies with thorough focus on quality, cost and passenger interest, India would surely achieve the third-largest aviation market by 2025.

Debate on the challenges faced by the renewable energy sector in India while discussing the achievements so far. Also discuss what measures must be taken by the government to upscale India's renewable energy ambition.

[Indianexpress](https://www.indianexpress.com)

Why this question:

Recently, at the Global Climate Action Summit in New York, Prime Minister Narendra Modi, made several announcements that underscored India's commitment towards addressing pressing environmental challenges. He talked about his government's plans to curb plastic use and invited countries to join the Coalition For Disaster Resilient Infrastructure.

Key demand of the question:

One must discuss the renewable energy scenario of India, challenges faced by the renewable energy sector in India while discussing the achievements made till date along with suggestions as to how should the country proceed on this front.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief quote statistics on the renewable energy scenario of the country.

Body:

First explain that Increasing the share of non-fossil fuels in the country's energy mix is the bedrock of India's commitments under the Paris Climate Pact. The country pledged an installed electricity capacity of 175 GW by 2022 — a more than five-fold capacity increase in seven years. In the last four years, India has more than doubled its RE capacity.

Discuss the challenges associated and achievements made so far.

Conclusion:

Conclude with what should be our next step.



India imports 80 percent of its oil needs and is the third largest oil consumer in the entire world. India's energy consumption is expected to grow 4.5 percent every year for the next 25 years.

Recently due to high International Crude Oil Prices, Current Account Deficit (CAD) inflated because of higher cost of oil import, raising concerns about long term economic stability in India, highlighting importance of energy security. On account of rising CAD, Indian Rupee touched its lowest.

Challenges for India's Energy Security

Policy Challenges:

Failure to attract international investment in domestic hydrocarbon exploration e.g. NELP failed to attract interest of large international energy corporations.

Major investments will have to be made to acquire hydrocarbon reserves abroad.

Coal mining in India suffers from delays due to regulatory and environmental clearances.

Indo-US nuclear helped fuel domestic power plants and give India access to critical technologies in strategic areas but deal did not lead to India setting up foreign-built reactors.

Accessibility Challenge:

The household sector is one of the largest consumers of energy in India. It is responsible for about 45% of the total primary energy use. In rural areas, biomass accounts for 90% of total primary fuel consumption for cooking. This has serious health impacts on the rural people.

Presently, 304 million Indians do not have access to electricity and around 500 million Indians are dependent on solid biomass for cooking.

Infrastructure and skill related challenges:

Lack of skilled manpower and poorly developed infrastructure for developing conventional and unconventional energy is the need of hour. India lacks transportation infrastructure for making energy accessible e.g. pipelines can be a useful way to boost the total supply of gas in the country. Gas will play a major role in Indian energy mix because it can be used effectively in several demand sectors.

Economic challenges:

Coal, oil and natural gas are the most important sources of primary energy in India. Inadequate domestic supplies of these hydrocarbons are forcing the country to increase its import bill. Rising fuel subsidies, rising CAD creates difficult conditions for economy.

External Challenges:

India's fragile energy security is under severe pressure from its rising dependence on imported oil, regulatory uncertainty, international monopolies and opaque natural gas pricing policies



India seeks to achieve its energy security through multiple partners e.g. Indo-USA nuclear deal, Oil import from Middle East etc. However, in recent times due to conflict among India's energy partners e.g. USA and Iran; India had to reduce oil import from Iran.

In wake of its difficult geographic location in South-Asia, India faces strategic challenge to meet its energy needs.

China's One Belt One Road initiative can give China definitive advantage if any conflict ensues between countries, by disturbing India's access to energy. Failure to get onboard all interested parties in IPI (Iran-Pakistan-India) gas pipeline and TAPI (Turkmenistan, Afghanistan, Pakistan and India) gas pipeline for assured supply of natural gas.

Measures to enhance energy security

Increasing accessibility to clean energy:

- India has already committed to bring electricity to every household by 2022. An even more ambitious goal would be to provide electricity to all households on 24x7 basis.
- To bring clean fuel in rural areas the Pradhan Mantri Ujjawala Yojana, should be complemented by: Setting up of biomass pelletising units; and distribution of 'efficient biomass chullahs'.
- On the agricultural front, solar irrigation pump distribution target must be stepped up and financed through credit support from NABARD and government subsidy.
- The potential non-conventional energy sources must be explored and researched to make them technologically economical and accessible, like geothermal energy, tidal energy etc.

Enhancing efficiency:

The National Mission for Enhanced Energy Efficiency (NMEEE) should conduct a thorough cost-benefit analysis of the available energy-efficient technologies and products across all sectors, especially agriculture, housing and transportation.

At the institutional level, the national and state designated agencies working in the area of energy efficiency should be strengthened.

To enhance vehicle fuel efficiency gains, the auto fuel quality should be upgraded to BS VI norms for nation-wide launch in 2020.

Policy changes:

Around three-quarters of our power comes from coal powered plants. It is important that India increases its domestic coal to reduce its dependence on imports. There is need to fast track the regulatory clearances, improve labour productivity, increase coal production and enhance efficiency of distribution.

Hydrocarbon Exploration and Licensing Policy (HELP) intends to minimize government's discretion in decision making, reduce disputes, reduce administrative delays and introduce concept of revenue sharing, freedom of marketing to stimulate growth in the oil and gas sector in India.



The tax structure should be rationalized in import and sale of energy on thermal value basis with a view to enhance the competitiveness of the economy.

The India energy security scenarios, 2047(IESS) has been developed as an energy scenario building tool. The guiding ambition of this is to develop energy pathways leading up to the year 2047, comprising of likely energy demand and supply scenarios.

NITI Aayog launched the India Energy Security Scenarios 2047 calculator (IESS 2047), as an open source web based tool.

The tool aims to explore a range of potential future energy scenarios for India, for diverse energy demand and supply sectors leading up to 2047.

It explores India's possible energy scenarios across energy supply sectors such as solar, wind, bio fuels, oil, gas, coal and nuclear and energy demand sectors such as transport, industry, agriculture, cooking and lighting appliances. The model allows users to interactively make energy choices, and explore a range of outcomes for the country-from carbon dioxide emissions and import dependence to land use.

Infrastructure:

Refining and distribution of oil and gas needs augmentation. Thus, India should sustain its export capacity of refined products by setting up new refineries.

At present, 31 companies are developing City Gas Distribution (CGD) networks in 21 states for transportation or distribution of natural gas to consumers in domestic, commercial or industrial and transport sectors through a network of pipelines.

For the hydro projects, the government will need to make efforts to expedite progress on capacity under construction through satisfactory Rehabilitation & Resettlement implementation.

India has also built its strategic petroleum reserves in order to meet any supply shocks due to any external exigencies like wars, natural disasters etc. Indian Strategic Petroleum Reserves Ltd, a special purpose vehicle under the Oil and Gas Ministry, has constructed three strategic petroleum reserves in huge underground rock caverns at Visakhapatnam on the East Coast, and at Mangaluru and Padur on the West Coast.

These facilities, with total capacity of 5.33 million tonnes, can meet about 10 days of India's crude oil requirements. India now plans to build another 6.5 million tonnes of storage at Padur and Chandikhol in Odisha which will augment its supply to 22 days.

India's Energy diplomacy:

India is setting up a web of energy relationships in the extended neighborhood covering Myanmar, Vietnam in the east, with Central Asian countries like Kazakhstan and Gulf countries in the west.

Indo-US Nuclear deal opened new vistas for India in field of Nuclear energy facilitating cutting edge technology and nuclear fuel. India has started to engage with China, Kazakhstan and Australia for nuclear fuel.

India's SCO membership could now play a bigger role in ensuring greater energy cooperation between energy producers and consumers by linking Central Asia and South Asia.



Promotion of Renewable Energy

A renewable energy capacity of 100 GW should be achieved by 2019-20 so as to contribute to achievement of 175 GW target by 2022.

Solar Energy Corporation of India Limited (SECI) should develop storage solutions within next three years to help bring down prices through demand aggregation of both household and grid scale batteries.

A large programme should be launched to tap at least 50% of the bio-gas potential in the country by supporting technology and credit support through NABARD by 2020.

Conclusion

Major transformations are underway in global energy sector, from growing electrification to the expansion of renewable energy, upheavals in oil production and globalization of natural gas markets. India needs to build its capacity in research and skills building to deal with these transformations in energy sector.

Challenges like carbon emissions, air pollution, and energy access outlines different possible future scenario for the energy security. The dynamic scenarios foreseen by Indian energy security scenarios, 2047(IESS) should guide the policy makers in Energy sector. India needs to ensure long term planning to ensure universal energy access and meeting its commitment under Paris Agreement to ensure sustainable and inclusive growth.

Throw light on the significance of road development in restructuring India's infrastructure scenario. Discuss while suggesting way forward to handle the current issues.

Livemint

Why this question:

Recently, After a robust FY19—the year preceding general elections—the pace of activity has slowed down. Year till date in FY20, a mere 500km of road projects have been awarded, raising doubts about NHAI's ability to fulfil the targeted 7,000-8,000km for the year.

Key demand of the question:

One has to discuss the significance of road development in restructuring India's infrastructure scenario.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief narrate the importance of Road as a key transport infrastructure.

Body:

Discuss the significance of road infrastructure and its contributions to the development of the economy.

Explain the issues associated in road development.

How can these issues be addressed?

Suggest solutions to overcome these challenges.

Conclusion:

Conclude by suggesting suitable solutions and way ahead.



- India's GDP growth rate slowed down to 5 per cent in Q1 of FY20 and is expected to be around 6 per cent or below in this financial year.
- As former Reserve Bank of India governor Y V Reddy mentioned recently, a combination of cyclical and structural factors have been responsible for the slowdown.
- Global uncertainties have added to the problem.
- In the last few weeks, the government has announced several measures to improve both consumption and investment in different sectors and for the economy as a whole.
- The announcement of reduction in corporate tax rates announced recently may help in reviving the sentiments of the private sector but the tax revenue may also decline and put pressure on fiscal deficit. But, these measures alone may not help in getting higher growth.

Structural issues to be tackled- We need to focus on three structural issues:

Physical infrastructure development, Raising human capital and Revival of rural economy for a long-term growth of 7 to 8 per cent and attaining \$5 trillion economy by 2024.

Infrastructure Development-

- Spending on infrastructure will have multiplier effects in the overall economy including stimulating private investment, aggregate demand and jobs.
- Construction sector was an important source of job creation during 2004-05 to 2011-12. This sector has to be revived in order to create growth and employment.
- The government seems to be fast tracking public capex, encouraging public sector enterprises (PSEs) to invest more and trying to clear the pending bills for the corporate sector and MSMEs.
- The announcement of Rs 100 lakh crore over five years for infrastructure by the government is an important measure.
- The **Vijay Kelkar committee's recommendation on PPPs** would be useful. The private sector's role is equally important.

Raising human capital for higher growth:

- **Health and education achievements** are essential for human capital. Yet the country's progress on both these aspects leaves much to be desired
- The Niti Aayog says that only **2.3 per cent of Indian workers have formal skill training compared to 70 to 80 per cent** in other countries.
- **Promotion of technology and knowledge economy** will add to growth. One can't have a "demographic dividend" for growth with low human capital.
- **Women's labour participation rates** have been low and declining. Raising women's human capital and participation rates can improve economic growth.
- We may also not achieve high human capital and productivity with **40 per cent of our children suffering from malnutrition.**

**Revival of rural economy:**

- **70 per cent of our population lives in rural areas** and has **stagnant incomes** and wages.
- There is a **need for revival of the rural economy** with infrastructure investment and structural reforms.
- **Agricultural marketing reforms** should be a priority.
- For better **price discovery**, agriculture has **to go beyond farming and develop value chains** comprising farming, wholesaling, warehousing, logistics, processing and retailing.
- **Agricultural exports should be promoted** with various policies. Similarly, rural infrastructure and water management are other priorities.

Stimulus and structural reforms can raise farmers' prices and wages and rise in demand for manufacturing and services.



Science and Technology- developments and their applications and effects in everyday life; Achievements of Indians in science & technology; indigenization of technology and developing new technology.

How is Chandrayaan-2 different from Chandrayaan-1? Critically analyse its objectives and challenges. Also, discuss how it's a breakthrough in the field of space research for ISRO.

Businesstoday

Why this question:

The question is in the backdrop of recently executed Chandrayaan -2.

Key demand of the question:

One must differentiate Chandrayaan-1 and Chandrayaan-2. Discuss in detail its objectives and challenges.

Directive:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief explain the context of the question.

Body:

The question is straight forward and there isn't much to deliberate.

Explain first the differences between the two missions and then explain the challenges faced and explain the significance of it in the field of science and technology.

Explain as well the role played by premier institutes like ISRO.

Conclusion:

Conclude with significance of such achievements.

Chandrayaan 2 is India's most ambitious space mission. While data from India's first lunar mission Chandrayaan 1 confirm the presence of water on the Moon without landing on the lunar surface, Chandrayaan 2 aimed to be the world's first mission to land on lunar South Pole.

| Chandrayaan 1 | Chandrayaan 2 |
|---|--|
| <ul style="list-style-type: none"> Had only Orbiter orbiting at hundred kilometres from lunar surface. It had 11 payloads - 5 from India, 3 from Europe, 2 from USA and 1 from Bulgaria Discovery of water on lunar surface mapping of chemicals and 3D topography | <ul style="list-style-type: none"> It has an Orbiter orbiting at hundred kilometres from lunar surface, Vikram Lander for soft landing near South Pole, Pragyan Rover. 13 Indian payload and one passive experimental Expanding lunar exploration from where Chandrayaan 1 has left |



| | |
|---|---|
| <ul style="list-style-type: none"> • PSLV rocket was used to launch Chandrayaan 1. | <ul style="list-style-type: none"> • GSLV MK3 space rocket it was used to launch Chandrayaan 2 |
|---|---|

Salient features of Chandrayaan 2 -

- In September 2008, the Chandrayaan-2 mission was approved by the government for a cost of Rs 425 crore.
- It is India's second mission to the moon.
- It aims to explore the Moon's South Polar Region.
- The mission is an important step in India's plans for planetary exploration, a program known as Planetary Science and Exploration (PLANEX).
- There are three components of the mission, an Orbiter, a lander and a rover.
- The mission payloads include — Terrain Mapping Camera which will generate a Digital Elevation Model (DEM) of the entire moon, Chandrayaan 2 Large Area Soft X-ray Spectrometer which will test the elemental composition of the Moon's surface Solar X-Ray Monitor which will provide solar X-ray spectrum inputs for CLASS.
- The Orbiter will be deployed at an altitude of 100 kilometres above the surface of the Moon. The lander will then separate from the Orbiter, and execute a soft landing on the surface of the Moon, unlike the previous mission which crash landed near the lunar south pole.
- The lander, rover and Orbiter will perform mineralogical and elemental studies of the lunar surface. The rover is named Pragyan.
- The mission's lander is named Vikram after Dr Vikram A Sarabhai, the Father of the Indian Space Programme.

Challenges faced -

- Very short window of 2 minutes for launching the mission.
- Non usability of parachute because of absence of atmosphere.
- Russia backing off from the mission.
- Very expensive project.
- Presence of Lunar dust.
- Extreme temperatures.
- Area of South Pole has lots of craters.
- Difficulty in manual controlling of the landing because of timeline.
- Soft landing was challenging.
- Translunar injection and lunar capture.



Why the south polar region of the moon?

According to ISRO, the lunar South Pole is an interesting surface area, which remains in shadow as compared to the North Pole. There is a possibility of the presence of water in permanently shadowed areas around it, the agency said, adding craters in the South Pole region have cold traps and contain fossil records of the early solar system.

The challenges along the way:

Challenges involved in the moon landing are identifying trajectory accurately; taking up deep space communication; trans-lunar injection, orbiting around the moon, taking up soft landing on the moon surface, and facing extreme temperatures and vacuum.

Significance

It will make India to join few allied space exploration Club of countries like USA Russia China. India would become first country to land on South Pole of the Moon. Chandrayaan 2 is a Landmark exploration step to make India a superpower and will yearn more in future exploration.

Challenges and Opportunities in front of India's Space Program -

India is still a developing country with vast developmental and security concerns. In this context it is very difficult to justify the allocations for space missions that do not have a direct bearing on development.

Successful launched of MOM and a planned rover onto the moon surely boosted the Indian space program. But India's reliance on satellites has created military vulnerabilities.

An anti-satellite missile (ASAT) tested by China in 2007 has also elevated the threat of a slow-moving arms race in space. DRDO is working on development of missile defence but it is increasingly looking to partner with the United States and other countries.

China has launched satellites for Pakistan and Sri Lanka in 2011 and 2012 respectively. This space cooperation may become another path for China to make inroads in South Asian countries.

During the starting of this decade India was highly critical of the EU effort to develop a code of conduct for outer space but in last years it has been actively engaged with the United States and the EU in particular in discussing a code of conduct and other safeguarding mechanisms.

India holds the view that reliance on the integration of outer space and cyber capabilities will only increase in future conflicts. But now beyond the maritime domain, India has been relying on foreign partners for many other satellite-based communications and data services. For instance, it continues to rely on NASA for deep space communications.

Privatization may also allow India to increase its launch capacity, which is currently at four to five per year while China does on average twenty or so launches. India does not have an explicit space policy to guide private sector participation.

ISRO also has internal constraints on its capacity to deliver.

The announcement by U.S. President Donald Trump in June 2018 about the creation of a "space force" or a sixth branch of the American armed forces has worried many including India. While India is officially committed to PAROS, or the prevention of an arms race in outer space, it is yet to



formulate a credible official response to such plans. India has yet to establish a credible space command of its own.

In this context China's reaction could be much stronger than its seemingly muted official response and it does possess a formidable space military programme that far exceeds current Indian capabilities.

Globally entrepreneurs like Elon Musk and Richard Branson began talking of space activities as independent profitable commercial ventures that can be termed as New Space revolution.

Now the time has come for a more structured approach that enables better incubation for young talent in India. Fortunately, Antrix is open to such ideas. Various policies and acts need to change from being restrictive to being enabling.

ISRO's role has been immaculate in making India a global space power; however, there are many challenges and prospects in the new space age that ISRO needs to focus on.

Discuss.

The hindu

Why this question:

The article discusses the role played by ISRO in making India a global power in the domain of space and the challenges and prospects it has for India's future space.

Key demand of the question:

One should bring out the potential of ISRO in the global space race and the challenges and prospects associated.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief explain the context of the question.

Body:

Explain 'new space age' and mention the challenges and opportunities for ISRO. There is emergence of 'new space age' which is used to refer to a global sector of new aerospace companies and ventures working independently of governments to develop faster, better, and cheaper access to space for commercial purposes.

Discuss the opportunities in the new space age.

Conclusion:

With increasing competition, complexity and demand for space-related activities, there is a growing realization that national legislation is needed to ensure overall growth of the space sector. A New Space law for India should aim at facilitating growing India's share of the global space economy to 10% in the coming decade.

The Indian Space Research Organisation (ISRO)'s success has made India to be inducted in an elite group of countries, where India is rightfully acknowledged as a space power in the world. Space technology is dual-use technology, in this feat, apart from space research; ISRO has delivered many projects serving military as well as socio-economic needs of India.

However, demand for space-based services in India is far greater than what ISRO can supply.

Therefore, private sector investment is critical, for which a suitable policy environment needs to be created.



The potential areas and challenges for ISRO?

- Today, the value of the global space industry is estimated to be \$350 billion and is likely to exceed \$550 billion by 2025.
- Despite ISRO's impressive capabilities, India's share is estimated at \$7 billion (just 2% of the global market) covering broadband and Direct-to-Home television (accounting for two-thirds of the share), satellite imagery and navigation.
- Already, over a third of transponders used for Indian services are leased from foreign satellites and this proportion will rise as the demand grows.
- Developments in Artificial Intelligence (AI) and big data analytics have led to the emergence of 'New Space'.
- New Space entrepreneurship has emerged in India with many start-ups which seek value in exploring end-to-end services in the Business-to-Business and Business-to-Consumer segments using new space. However, these startups have yet to take off in the absence of regulatory clarity.
- So they need an enabling ecosystem, a culture of accelerators, incubators, venture capitalists and mentors that exists in cities like Bengaluru which is where most New Space start-ups have mushroomed.
- Also, the New Space start-ups discern a synergy with government's flagship programmes like Digital India, Startup India, Skill India and schemes like Smart Cities Mission.
- Another revolution underway is the small satellite revolution.
- Globally, 17,000 small satellites are expected to be launched between now and 2030.
- ISRO is developing a small satellite launch vehicle (SSLV) expected to be ready in 2019.
- It is a prime candidate, along with the proven PSLV, to be farmed out to the private sector.
- In this context, The Assembly, Integration and Testing (AIT) role, which is restricted to ISRO, must now be outsourced.
- Also years ago, ISRO launched the idea of Village Resource Centres to work in collaboration with local panchayats and NGOs but only 460 pilots have begun. Expanding this for rural areas is a formidable challenge but has the potential to transform rural India if properly conceived as a part of the India Stack and the Jan Dhan Yojana.

Further, with the Ministry of Defence now setting up a Defence Space Agency and a Defence Space Research Organization, ISRO should now actively embrace an exclusively civilian identity.

So with increasing competition, complexity and demand for space-related activities, there is a growing realization that national legislation is needed to ensure overall growth of the space sector. A New Space law for India should aim at facilitating growing India's share of the global space economy to 10% in the coming decade.

The government now has an opportunity to give priority to a new Bill that can be welcomed by the private sector, both the larger players and the start-ups alike. In any case, ISRO's hands are full with



new missions—deep space, scientific, human flight, commercial and strategic. However, to develop an aerospace industry with private investments and startups, India needs to develop a clear blueprint and also put in place a space regulatory system.

What is clean coal technology? Do you agree that clean coal is the next silver bullet for India's carbon emission reduction after solar energy? Analyse.

The hindubusinessline

Why this question:

Recently Union Minister of Science & Technology inaugurated the National Centre for Clean Coal Research and Development at Indian Institute of Science (IISc)-Bengaluru.

Key demand of the question:

One has to explain the concept of clean coal technology, and also in what way it has a key role to play in India's carbon emission reduction after solar energy.

Directive:

Analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Define what is Clean coal technology

Body:

Clean coal technology is a collection of technologies being developed in attempts to lessen the negative environmental impact of coal energy generation and to mitigate worldwide climate change. The term "clean coal" has been applied to many technologies, ranging from wet scrubbers, which remove sulfur dioxide from coal-generated gas, to coal washing, which removes soil and rock from coal before it's sent to a factory.

Conclusion:

Conclude that the research in clean coal domain could potentially be game changer for meeting the energy needs of the country in terms of higher efficiency and capacity at lower operating costs and size.

Coal is by far the most abundant fossil fuel on earth. It is essentially carbon and is mainly used as a combustion fuel. Half of the world's electricity is generated by burning coal. Coal will remain a dominant energy source for years to come. Since CO₂ contributes to global warming, reducing its release into the atmosphere has become a major international concern.

Some 23% of primary energy needs are met by coal and 39% of electricity is generated from coal. About 70% of world steel production depends on coal feedstock. Coal is the world's most abundant and widely distributed fossil fuel source. The International Energy Agency (IEA) expects a 43% increase in its use from 2000 to 2020.

However, burning coal produces almost 14 billion tonnes of carbon dioxide each year which is released to the atmosphere, most of this being from power generation.

Development of new 'clean coal' technologies is addressing this problem so that the world's enormous resources of coal can be utilized for future generations without contributing to global warming. Much of the challenge is in commercializing the technology so that coal use remains economically competitive despite the cost of achieving low, and eventually 'near-zero', emissions. The technologies are both costly and energy-intensive.

As many coal-fired power stations approach retirement, their replacement gives much scope for 'cleaner' electricity. Alongside nuclear power and harnessing renewable energy sources, one hope for this is via 'clean coal' technologies, such as carbon capture and sequestration, also called carbon



capture and storage (both abbreviated as CCS) or carbon capture, use and storage (CCUS). It involves the geological storage of CO₂, typically 2-3 km deep, as a permanent solution.

Consequently the term 'clean coal' is increasingly being used for supercritical and ultra-supercritical coal-fired plants without CCS, running at 42-48% thermal efficiency. These are also known as high-efficiency low-emission (HELE) plants. The capital cost of ultra-supercritical (USC) HELE technology is 20-30% greater than a subcritical unit, but the higher efficiency reduces emissions and fuel costs to about 75% of subcritical plants. A supercritical steam generator operates at very high temperature (about 600°C) and pressures (above 22 MPa), where liquid and gas phases of water are no longer distinct. In Japan and South Korea about 70% of coal-fired power comes from supercritical and ultra-supercritical plants.

Advantages of Clean coal technology:

- Clean coal technology seeks to reduce harsh environmental effects by using multiple technologies to clean coal and contain its emissions.
- Some clean coal technologies purify the coal before it burns. One type of coal preparation, coal washing, removes unwanted minerals by mixing crushed coal with a liquid and allowing the impurities to separate and settle.
- Other systems control the coal burn to minimize emissions of sulfur dioxide, nitrogen oxides and particulates.
- Electrostatic precipitators remove particulates that aggravate asthma and cause respiratory ailments by charging particles with an electrical field and then capturing them on collection plates.
- Gasification avoids burning coal altogether. With gasification, steam and hot pressurized air or oxygen combine with coal in a reaction that forces carbon molecules apart. The resulting syngas, a mixture of carbon monoxide and hydrogen, is then cleaned and burned in a gas turbine to make electricity.
- Wet scrubbers, or flue gas desulfurization systems, remove sulfur dioxide, a major cause of acid rain, by spraying flue gas with limestone and water.
- Low-NO_x (nitrogen oxide) burners reduce the creation of nitrogen oxides, a cause of ground-level ozone, by restricting oxygen and manipulating the combustion process.

With government's efforts to push renewable energy due to international conventions on climate change, increase in carbon cess and other initiatives for lesser use of coal, there is a need for 'Vision 2030 for the coal sector', which takes into account the environmental factors such as reduction of carbon footprint, abatement of global warming. Thus in this aspect clean coal technologies are the best way forward.

Artificial Intelligence is the new oil, the new factor of production. Like the industrial revolution, it will transform every sector. Elucidate with subsequent examples.

[Downtoearth](#)

Why this question:



Technology is the key to build a thriving, resilient world, especially in India where high mobile penetration and the government's digital initiatives can work in tandem to bring a sustainable and affordable transformation for societal needs.

Key demand of the question:

The question is straightforward and aims to discuss the importance of AI and in what way it is a revolution to be witnessed soon.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In brief define AI.

Body:

Explain the evolution of AI, its significance. Discuss in what way connectivity and innovation in technology are transforming how organizations and governments operate.

With suitable examples explain how technology can aid development and help address issues of governance and turn it into good governance.

Discuss the associated concerns and challenges and in what way they can be addressed.

Conclusion:

Conclude with suitable examples and on a positive note.

Artificial Intelligence (AI) - AI is the science of building computers that can solve problems the way humans do. With intelligent machines enabling high level cognitive processes like thinking, perceiving, learning, problem solving and decision making, coupled with advances in data collection and aggregation, analytics and computer processing power, AI presents opportunities to complement and supplement human intelligence and enrich the way people live and work.

- The term was coined in 1956 by John McCarthy at the Dartmouth conference, Massachusetts Institute of Technology.
- It encompasses everything from robotic process automation to actual robotics.
- Recently it has become widely popular and gained prominence due to its multifaceted application ranging from healthcare to military devices.
- AI is a constellation of technologies that enable machines to act with higher levels of intelligence and emulate the human capabilities of sense, comprehend and act.
- The natural language processing and inference engines can enable AI systems to analyse and understand the information collected.

Applications of Artificial Intelligence (AI):

- **Self-driving Cars:** Advances in artificial intelligence have brought us very close to making the decades-long dream of autonomous driving a reality. AI algorithms are one of the main components that enable self-driving cars to make sense of their surroundings, taking in feeds from cameras installed around the vehicle and detecting objects such as roads, traffic signs, other cars, and people.
- **Digital assistants and smart speakers:** Siri, Alexa, Cortana, and Google Assistant use artificial intelligence to transform spoken words to text and map the text to specific commands. AI helps



digital assistants make sense of different nuances in spoken language and synthesize human-like voices.

- **Translation:** For many decades, translating text between different languages was a pain point for computers. But deep learning has helped create a revolution in services such as Google Translate. To be clear, AI still has a long way to go before it masters human language, but so far, advances are spectacular.
- **Facial recognition:** Facial recognition is one of the most popular applications of artificial intelligence. It has many uses, including unlocking your phone, paying with your face, and detecting intruders in your home. But the increasing availability of facial-recognition technology has also given rise to concerns regarding privacy, security, and civil liberties.
- **Medicine:** From detecting skin cancer and analyzing X-rays and MRI scans to providing personalized health tips and managing entire healthcare systems, artificial intelligence is becoming a key enabler in healthcare and medicine. AI won't replace your doctor, but it could help to bring about better health services, especially in underprivileged areas, where AI-powered health assistants can take some of the load off the shoulders of the few general practitioners who have to serve large populations.
- **Agriculture Sector:** AI can be used to predict advisories for sowing, pest control, input control can help in ensuring increased income and providing stability for the agricultural community. Image classification tools combined with remote and local sensed data can bring a revolutionary change in utilization and efficiency of farm machinery, in areas of weed removal, early disease identification, produce harvesting and grading.
- **Business Sector:** To take care of highly repetitive tasks Robotic process automation is applied which perform faster and effortlessly than humans. Further, Machine learning algorithms are being integrated into analytics and CRM platforms to provide better customer service. Chatbots being used into the websites to provide immediate service to customers. Automation of job positions has also become a talking point among academics and IT consultancies such as Gartner and Forrester.
- **Education Sector:** AI can make some of the educational processes automated such as grading, rewarding marks etc. therefore giving educators more time. Further, it can assess students and adapt to their needs, helping them work at their own pace. AI may change where and how students learn, perhaps even replacing some teachers.
- **Financial Sector:** It can be applied to the personal finance applications and could collect personal data and provide financial advice. In fact, today software trades more than humans on the Wall Street.
- **Legal Sector:** Automation can lead to faster resolution of already pending cases by reducing the time taken while analyzing cases thus better use of time and more efficient processes.
- **Manufacturing sector:** Robots are being used for manufacturing since a long time now; however, more advanced exponential technologies have emerged such as additive manufacturing (3D Printing) which with the help of AI can revolutionize the entire manufacturing supply chain ecosystem.
- **Intelligent Robots:** Robots can perform the tasks given by a human because of sensors to detect physical data from the real world such as light, heat, temperature, movement, sound, bump, and pressure. Moreover, they have efficient processors, multiple sensors and huge memory, to exhibit intelligence. Further, they are capable of learning from their errors and therefore can adapt to the new environment.



- **Gaming:** AI has a crucial role in strategic games such as chess, poker, tic-tac-toe, etc., where the machine can think of a large number of possible positions based on heuristic knowledge.
- **Cyber Security:** In the 20th conference on e-governance in India it was discussed that AI can provide more teeth to cyber security and must be explored.
- **Smart Cities and Infrastructure:** Use of AI to monitor patronage and accordingly control associated systems such as pavement lighting, park maintenance and other operational conditions could lead to cost savings while also improving safety and accessibility.

Conclusion

Many experts have described the rise of automation as one of the most important economic and social developments in history. The World Economic Forum (WEF) has characterized it as the fulcrum of a 4th Industrial Revolution. Moreover, the economist Andrew McAfee said, "Digital technologies are doing for human brainpower what the steam engine and related technologies did for human muscle power during the Industrial Revolution. They're allowing us to overcome many limitations rapidly and to open up new frontiers with unprecedented speed. It's a very big deal. But how exactly it will play out is uncertain."

It may cause unemployment, unease in the mindset of masses, and even social conflict at many conflicts at many reasons. In the short run, it is very difficult to predict who will get the most of the benefits however better policy guidelines, better regulations, and social security measures will essentially bring overall goodness to the society.

Awareness in the fields of IT, Space, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.

What do you understand by space tourism? Discuss its origin and explain what can the space tourist look forward to and the benefits of future of flying tourists into space.

Livemint

Why this question:

The question is in the context of recent endeavors made by the Indian space agency and thus the need to analyse the potential it holds in coming future.

Key demand of the question:

One needs to discuss the concept of space tourism and the potential it holds.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Space tourism is human space travel for recreational purposes.

Body:

With India's latest lunar mission Chandrayaan-2 set to boldly go where no country has gone before, the Moon's south polar region, it is on course to throw open new possibilities for the world.

Then discuss the summary of the main driver, opportunities, challenges, current market trends and strategies impacting the global Space Tourism market.

Discuss the role of private sector companies, how they have evolved over the years.

Conclusion:

Conclude with potential holds in the industry and the avenues in the coming future



Space tourism, recreational space travel, either on established government-owned vehicles such as the Russian Soyuz and the International Space Station (ISS) or on vehicles fielded by private companies. Since the flight of the world's first space tourist, American businessman Dennis Tito, on April 28, 2001, space tourism has gained new prominence

Drivers

- Ongoing space exploration by different Agencies like ISRO, NASA etc. has cultivated huge interest in humanity for space travel
- Sci fi movies such as interstellar Gravity Martian as showcased space as an adventurous place
- First manned mission into space and astronauts who has travelled into space are considered hero in our society the placing of International Space Station has need constant human presence into to space necessary
- Ongoing advancement in science and technology is making space travel more efficient. What is example people are thinking of Mars one mission which is one way journey to the Mars and establishing human settlement there
- In developed countries the tourism business is approaching its saturation space tourism is opening a new Avenue for the business

Benefit of space tourism

- Cost of reaching space will go down with increase in competition revenue generated from space tourism will further support space exploration and the cost will reduce in a same way the cost of air travel has reduced.
- Due to Technical Advancement and increasing use of space by human there will be use of space technology in other fields of human life such as travelling time across the globe will be reduced drastically to an hour or two by using hypersonic travel
- It will inspire new generation of Engineers
- Job creation - there are many companies that are there in space tourism business these company has not existed a few decades ago growth of space tourism will also generate more of a manufacturing job engineering job service sector job life Pilots etc
- It can give additional support to space research and development like asteroid mining
- Which space tourism chances of space getting militarized will be avoided

Challenges

- Very steep initial cost the degree of sophistication and the technology used in space make this business very costly
- Chances of catastrophic disaster - space is a very hostile place for human survival and it does not operate in anyway any of slightest mistake can lead to great loss of life and property
- Sustainability of the business - the customer base being extremely low, the cost of travel tends to remain high throughout may cause sustainability issue



- Health effect of space travel - DNA damage bone loss muscles loss blood pressure problem are the health issues associated with space radiation and microgravity present in space
- Environmental effect- according to the study by NASA 1000 sub orbital launches releases 600 tons carbon black into stratosphere it has potential to create strong hemispheric climatic assembly pollution from this industry can also accelerate global warming and damage ozone layer
- International orders - according to outer space Treaty 1967 outer space is not subjected to National appropriation by claims of sovereignty or by means of occupation.

Present trends

After first space tourism in 2001 as many as eight people has travelled 2 space for tourism purpose. Presently mainly private companies such as blue origin Virgin Galactic space adventure Limited Arora Space Station a Start-up form space X etc. are venturing into this business with their own ambitious projects and capital. 2010 report by Federal aviation administration predicted that space tourism can become a billion dollar market within 20 years

Conservation, environmental pollution and degradation, environmental impact assessment

Viewing the transnational challenge of climate change through the narrow lens of nationalism will only spell more disasters. Critically analyze.

The hindu

Why this question:

The article is premised on the recent incidences of Amazon forest fires and it explains in detail in what way climate change is a transnational challenge and that narrow lens of nationalism will only lead to more grave concerns.

Key demand of the question:

One must discuss in detail the pan- global nature of the climate change and in what way it needs to be handled with cumulative efforts of the world countries and isolated, nationalistic tendencies will only hamper and aggravate the climate change issue.

Directive:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

In brief narrate the issue of climate change.

Body:

Explain in what way the election of Jair Bolsonaro in Brazil not only marks the rise of another populist nationalist leader on the world stage. It's also a turning point for the global politics of climate change.

Discuss that Mitigation policies require leaders to expend short-term political capital for long-term economic and environmental gains. However, populists have shown a particularly strong disinterest for doing so, particularly if those short-term costs would affect their prioritized group of the people. Explain with example the entire issue and what needs to be done.

Conclusion:

Conclude with way forward.



Climate change is modification of global climate and weather patterns it occurs due to the changes in atmosphere and its interaction with other geological chemical or biological factors. The on-going climate change is referred as global warming. It is mainly attributed to anthropogenic activities such as use of fossil fuels as energy source and unsustainable agricultural practices like clearing of forest and use of chemicals.

Scale of global warming:

- **Rising sea level**- nearly 650 million people are threatened due to rising Sea Level Island countries like Maldives, Philippines, Samoa, Nauru, etc. may sink completely
- **Climate refugee**- sea level rise will displace large number of people in future which will intensify the present in refugee crisis in the world
- **Abnormal weather patterns**- summers and winters are becoming more extreme frequency of cyclone is increasing incidences of flood and deficient rainfall has also increased
- **Shortage of food** - with erratic and extreme weather phenomena the global food production is bound to suffer causing large-scale hunger problem.
- **Reducing ice cover** - global warming will expose peatland of tundra region means decomposition will start there that will release massive amount of carbon locked in
- **Ecosystem destruction** - rise in global city temperature has caused coral bleaching melting of ice caps in arctic sea habitat of polar bear tundra belt is also shrinking sixth major extinction is on the move

In short global warming is the greatest obstacle in attaining sustainable development goal.

International Cooperation -

- 1972 first Earth summit
- 1992 UNCED / Rio summit - Which resulted in Rio Declaration on Environment and Development, Agenda 21, Forest Principle. Legally binding agreements like CBD, UNFCCC, united nation convention to combat desertification.
- 2002 world summit on sustainable development
- 2012 united nation conference on sustainable development / Rio + 20.
- 2014 where is summit under UNFCCC
- Countries declared their INDC and India launched international solar alliance (ISA).
- Most successful example of international cooperation in handling global environment issue is Montreal protocol to tackle ozone depletion

Nationalism versus climate change -



- Developing vs. developed country - developing countries not ready to compromise on their Right to Develop. Developed countries are not adhering to Common but Differentiated Responsibility
- Lack of support from developed countries has caused developing and LDC countries to exploit globally important natural resources present with them to keep up with economic development.

Example - Brazil's amazon forest exploited in so unsustainable manner that previously fire resistant forest has now become prone to forest fire.

- Global economic slowdown is forcing countries to overlook environment for short term economic goal by hiding it in their nationalist propaganda.

Example USA has threatened to move out of Paris agreement it is planning to revive construction of keystone xl pipeline to bring carbon heavy Canadian tar sands to its refinery.

- Rising xenophobia and ultra-nationalism is preparing hard bed for climate refuses of future.

Way forward

According to **IPCC special report 2018** - To limit global temperature rise to 1.5 degree Celsius of pre industrialisation phase, the mission cut 25% by 2030 and hundred per cent by 2075 and rapid for teaching and unprecedented change in all aspects of society will be required. Therefore, **Common but differentiated responsibility** principle must be adhered to strictly.

- Developing countries such as India and china must extend their supports for or reducing global emission
- Helping hand to IDC so that they do not land of destroying the environment for economic gain
- Changes in agricultural practices like large scale adoption of zero budget natural farming.
- All countries must extend their support to ISA to make it a real success.

Conclusion

The real nationalism is not limited by economic gain but it extends to all aspects of society. Formation Elysium to exist earth must be saved for human survival first.

Where does India stand on plastic waste management today? Discuss the solutions and alternatives to the plastic menace of India.

[The hindu](#)

Why this question:

The article discusses in detail the issue of plastic menace India is dealing with.

Key demand of the question:

One must explain the current state of plastic waste management in India and the urgency to tackle them. Discussion should capture the way forward to handle the issue and suggest solutions and alternatives.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

**Introduction:**

In brief quote facts to suggest the plastic menace the world is dealing with.

Body:

Explain in detail the issue of plastic in India, where does India stand today in terms of managing the waste produced by use of plastic.

Discuss various initiatives and policies taken by the govt. recently to tackle the issue.

What more can be done to address.

Conclusion:

Conclude with way forward.

On August 15, in his Independence Day address, Prime Minister Narendra Modi called for a **movement to eliminate single use plastic in India**. The government is reported to be working on a ban on certain plastic items of common use such as carry bags, cutlery and plates under the Environment (Protection) Act, and this may be announced on October 2.

The Central Pollution Control Board (CPCB) **has pulled up 52 companies for not specifying a timeline or plan to collect the plastic waste** that they generate. The companies that have been pulled up include Amazon, Flipkart, Patanjali Ayurved Limited, etc.

Where does India stand on plastic waste?

- **Per capita consumption** of plastic is projected **to go up from 11 kg in 2014-15 to 20 kg by 2022** (Federation of Indian Chambers of Commerce and Industry data); about 43% is single use packaging with poor rates of recovery.
- In spite of the notification of the **Plastic Waste Management (PWM) Rules, 2016**, and amendments made two years later, **most cities and towns are not prepared to implement its provisions**.
- Even the **biggest Municipal Corporations** shouldering a **staggering waste burden** have **failed to implement segregation of waste**: collecting recyclable plastic, non-recyclable plastic and other waste separately for processing by material recovery facilities.
- An amendment to the PWM Rules in 2018, by which a **six month deadline** was fixed for producers to **arrange for recovery of waste in partnership with State Urban Development departments**, has made little progress.

Are alternatives such as compostable or biodegradable plastics available?

- Although compostable, biodegradable or even edible plastics made from various materials such as **bagasse** (the residue after extracting juice from sugarcane), **corn starch**, and **grain flour** are promoted as alternatives, these currently have **limitations of scale and cost**.
- In India in the **absence of robust testing and certification to verify claims** made by producers, **spurious biodegradable and compostable plastics** are entering the marketplace.
- In January this year, **the CPCB said that 12 companies were marketing carry bags and products marked 'compostable' without any certification**, and asked the respective State Pollution Control Boards to take action on these units.

What can be the possible solutions to the problem?



- **A ban on single use plastic items would have to lay down a comprehensive mechanism to certify the materials marketed as alternatives**, and the specific process required to biodegrade or compost them.
- The solutions can be **packaging innovation and upscaling waste segregation, collection and transmission**.
- **Recovering materials from garbage should be a high priority**, considering that India is the third highest consumer of materials.
- A movement against plastic waste would have to **prioritise the reduction of single use plastic** such as multilayer packaging, bread bags, food wrap, and protective packaging. Consumers often have no choice in the matter.
- **Municipal and pollution control authorities** must also be **held accountable** for the lapses.

Conclusion-

Packaging is projected to **grow into a \$72.6 billion industry in India by 2020** from about \$31 billion in 2015, with a proportionate rise in waste volumes. The **pressure on producers to streamline the collection, recycling and processing** of all forms of plastic is **bound to grow**. **Individuals and organizations** should now **actively remove plastic waste from their surroundings** and municipal bodies must arrange to collect these articles. **Startups and industries should think of newer ways of recycling**.

Coming together of global powers is vital for the design of policies against climate change. Discuss in the context of Brazil's initial refusal of international support in the Amazon fire crisis.

Livemint

Why this question:

The article captures the current ongoing environmental crisis that the South American countries are facing owing to alarming Amazon forest fires.

Key demand of the question:

One must bring out the necessity of collective responsibility of global powers in handling such threats to the mother nature through collective policies against climate change.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief explain the current scenario.

Body:

Explain in brief the issue of forest fires and the gravity of the situation – areas affected by the calamity, what are the causes of concern.

Explain How the government of Brazil has dealt with the crisis? - issues involved therein. – President Jair Bolsonaro has made things a lot worse by weakening the environment agency, attacking conservation NGOs and promoting the opening of the Amazon to mining, farming and logging. The agricultural lobby is powerful in Brazil and it has steadily eroded the protection system that was so successful from 2005-2014. Deforestation crept up in the past five years under the previous presidents Dilma Rousseff and Michel Temer. The rate has accelerated rapidly in the first eight months of current president Bolsonaro's rule.



Then discuss the need for collective global policy and urgent need of it.

Conclusion:

Conclude with way forward.

Climate change is modification of global climate and weather patterns it occurs due to the changes in atmosphere and its interaction with other geological chemical or biological factors

Scale of global warming:-

- **Rising sea level-** nearly 650 million people are threatened due to rising sea level island countries like Maldives, Philippines, Samoa, Nauru, etc. May sink completely
- **Climate refugee-** sea level rise will displace large number of people in future which will intensify the present in refugee crisis in the world
- **Abnormal weather patterns-** summers and winters are becoming more extreme frequency of cyclone is increasing incidences of flood and deficient rainfall has also increased
- **Shortage of food** - with erratic and extreme weather phenomena the global food production is bound to suffer causing large-scale hunger problem
- **Reducing ice cover** - global warming will expose peatland of tundra region means decomposition will start there that will release massive amount of carbon locked in
- **Ecosystem destruction** - rise in global city temperature has caused coral bleaching melting of ice caps in arctic sea habitat of polar bear tundra belt is also shrinking sixth major extinction is on the move

In short global warming is the greatest obstacle in attaining sustainable development goal. Seeing the global scale of the problem coming together of global powers is vital for the design of policies against climate change.

Amazon forest fire-

Amazon is responsible for 20% of oxygen generation and home to 10% of world's known biodiversity. It is called Lungs of Earth. Our planet's lungs is burning, there is haze over an area equal to that of India in Amazon.

But recently Brazil had declined foreign aid for controlling the worst forest fire ever in Brazil citing the sovereignty issue over the statement by France

Response of Brazilian government

- At first it denied that forest fire is due to human reason
- It even denied any activity of deforestation and crime in the forest
- It is stated that 'it is unfair that use mineral resources is reserved for amazon tribes'
- Brazil wants to exploit mineral reserves present in amazon forest for this it is taking support from mining industries in USA (another climate change denier)

Repercussions for Brazil -

- Tarnishing Brazil's image as a green villain at international level.



- Shut down of The Amazon Fund mainly from Norway and Germany for preserving the rainforest.
- Boycott of Brazilian products by consumers around the world

Challenges

- **Developing vs developed country** - developing countries not ready to compromise on their **Right to Develop**. Developed countries are not adhering to Common But Differentiated Responsibility
- **Lack of support from developed countries** has caused developing and LDC countries to exploit globally important natural resources present with them to keep up with economic development.
 - **Example** - Yasuni National park - Ecuador Had asked for global aid to not explore and exploit resources in NP for economic purpose, but world did not responded positively.
- **Global economic slowdown** is forcing countries to overlook environment it for short term economic goal by hiding it in there nationalist propaganda.
 - **Example** USA has threatened to move out of Paris agreement it is planning to revive construction of keystone xl pipeline to bring carbon heavy Canadian tar sands to its refinery

Way forward

According to IPCC special report 2018

To limit global temperature rise to 1.5 degree Celsius of pre industrialisation phase, deep mission cut 25% by 2030 and hundred percent by 2075 and rapid for teaching and unprecedented change in all aspects of society will be required

Therefore,

- All countries must come together and form some International forest monitoring body on the line of international atomic energy association to look after the use of forest globally
- Funding mechanism must be kept in place to give funds to the country for maintenance and protection of their forest in the same way finance commission of India takes into account the forest cover for disbursing grants to the states
- Developed countries should extend a helping hand to needy developing countries so that they can also enjoy their right to develop without damaging the environment
- Nationalism must be replaced by globalism in matter as Global as climate change
- Common but differentiated responsibility principle must be adhered to strictly.
- Changes in agricultural practices like large scale adoption of zero budget natural farming
- All countries must extend their support to ISA to make it a real success.

Conclusion -

Since climate change is a global issue there is a need for collective global policy to meet the sustainable development targets and preserving such large-scale ecosystem. This policy would help



agencies to prevent individual country action to destroy ecosystems & meeting emission norms & controlling global temperature rise targets.

“An effective implementation of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights Act) of 2006 is an opportunity for India to demonstrate a model of conservation where historic missteps are addressed while being strategic about the commitments to climate and biodiversity action”. Comment.

Hindustantimes

Why this question:

The article discusses the implementation of Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights Act) of 2006 with respect to the environmental concerns.

Key demand of the question:

One

Directive:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

In brief narrate the provisions of the act.

Body:

Discussion should be based on the fact that while it is true that human activity has resulted in unprecedented environmental destruction as well as the extinction of species, there is also evidence of alternative paradigms where community-led forest conservation initiatives have been successful in preventing the over-exploitation of natural resources.

Take hints from the article and explain the challenges involved.

Suggest what measures are needed to be taken to handle the challenges.

Conclusion:

Conclude with way forward.

Rights under the Act:

Title rights – ownership to land that is being farmed by tribal or forest dwellers subject to a maximum of 4 hectares; ownership is only for land that is actually being cultivated by the concerned family, meaning that no new lands are granted.

Use rights – to minor forest produce (also including ownership), to grazing areas, to pastoralist routes, etc.

Relief and development rights to rehabilitate in case of illegal eviction or forced displacement; and to basic amenities subject to restrictions for forest protection. Forest management rights to protect forests and wildlife.

Eligibility:

Eligibility to get rights under the Act is confined to those who “primarily reside in forests” and who depend on forests and forest land for a livelihood. Further, either the claimant must be a member of the Scheduled Tribes scheduled in that area or must have been residing in the forest for 75 years.

Why this law was necessary?



What are called “forests” in Indian law often have nothing to do with actual forests. Under the Indian Forest Act, areas were often declared to be “government forests” without recording who lived in these areas, what land they were using, what uses they made of the forest and so on. 82% of Madhya forest blocks and 40% of Orissa’s reserved forests were never surveyed; similarly 60% of India’s national parks have till today not completed their process of enquiry and settlement of rights. As the Tiger Task Force of the Government of India put it, “in the name of conservation, what has been carried out is a completely illegal and unconstitutional land acquisition programme.” Hence, this was law necessary.

Various factors that have prevented the proper implementation of the FRA since its passage in 2006 include:

Process of documenting communities’ claims:

The process of documenting communities’ claims under the FRA is intensive — rough maps of community and individual claims are prepared democratically by Gram Sabhas. These are then verified on the ground with annotated evidence, before being submitted to relevant authorities.

The Gram Sabha is treated as a public authority under the FRA, and if the higher authorities under the law reject its claims, substantive reasons have to be provided for doing so. This exhaustive process is why the official diktat to implement the FRA so quickly lacks any understanding about the extent of the task and labour involved.

Reluctance of the forest bureaucracy to give up control:

Another main factor inhibiting the FRA’s full implementation is the reluctance of the forest bureaucracy to give up control. The forest bureaucracy has misinterpreted the FRA as an instrument to regularise encroachment. This is seen in its emphasis on recognising individual claims while ignoring collective claims — Community Forest Resource (CFR) rights as promised under the FRA — by tribal communities.

To date, the total amount of land where rights have been recognised under the FRA is just 3.13 million hectares, mostly under claims for individual occupancy rights.

Narrow interpretation of the FRA:

The narrow interpretation of the FRA is also to be blamed. It is against the letter and spirit of the law, which seeks to undo historical injustices and return the forests to community jurisdiction. It also contradicts the estimates for forest area collectively used by tribal and other forest communities that are provided by government agencies themselves.

Environment Ministry’s moves:

The Environment Ministry’s conduct also causes concern. Entrusted with stewarding our forests, it has instead concentrated great energy on how to hasten their felling (through the forest clearances it awards). In doing this, it appears that it has, among other things, mounted a prolonged effort to see if and how meaningful community participation can be eliminated from the clearance process.

What needs to be done now?

- The government can start by recognising the role played in the FRA’s meagre implementation by the forest bureaucracy’s resistance as well as the acute lack of awareness of FRA’s community



rights provisions in State administrations and forest communities. In almost all States, the Forest Department has either appropriated or been given effective control over the FRA's rights recognition process. This has created a situation where the officials controlling the implementation of the law often have the strongest interest in its non-implementation, especially the community forest rights provisions, which dilute or challenge the powers of the forest department.

- If the government is serious about implementing the FRA, it should confront the forest bureaucracy and make it clear that any obstruction on their part is unacceptable. The little progress that has been made in implementation so far has been due to close coordination between tribal departments, district administrations and civil society.
- There is also a clear need to strengthen the nodal tribal departments, provide clear instructions to the State and district administrations, and encourage civil society actors. Without a strong political will, this historical transformation is unlikely to take place.
- **Many states have a poor record of implementation of the act:** Bihar, Jharkhand, Himachal Pradesh, Karnataka, Kerala, Odisha, Telangana, Uttarakhand, Uttar Pradesh and West Bengal have been identified as having lagged behind in implementation of the FRA. The misuse of a law cannot be the reason to dilute it or call for its repeal. Land is a valuable resource for those who live off it and one way of ensuring lesser fragmentation is to approve community forest rights which take a long time for clearance. People are at the centre of protecting forests and conservation and if the FRA is not delivering its promise, it can be blamed squarely on the government's devious approach and its barely concealed intent to enfeeble the law.

Conclusion:

The implementation of the Forest Rights Act, 2006 has been opaque and there is serious lack of awareness about its provisions not only among the beneficiaries but also among the officials in charge of implementing it. Given the complaints from either side, it is time the government reviewed the law and also looked at the objections raised when it was first tabled as a bill.

Bring out the issue of desertification in India and discuss the importance of the United Nations Convention to Combat Desertification.

[Downtoearth](https://www.downtoearth.org.in/news/india/bring-out-the-issue-of-desertification-in-india-and-discuss-the-importance-of-the-united-nations-convention-to-combat-desertification-43888)

Why this question:

The article talks about the significance of research that could hold the key for global land restoration effort and that there is a need for collaboration among scientists, government and farming communities, as suggested by scientists on the sidelines of United Nations Convention to Combat Desertification's (UNCCD) 14th Conference of Parties (CoP 14) going on from September 2, 2019, until September 13.

Key demand of the question:

One must bring out the issue of desertification in India and discuss the importance of the United Nations Convention to Combat Desertification.

Directive:

***Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.*

Structure of the answer:

Introduction:

Discuss the context of the question.

**Body:**

In brief explain what desertification is.

Then explain the role of UNCCD – It is the sole legally binding international agreement linking environment and development to sustainable land management. It is the only convention stemming from a direct recommendation of the Rio Conference's Agenda 21.

Explain what is the need of the hour – Responsible land governance is key to provide an enabling environment for ecosystem restoration, biodiversity protection, and land use-based adaptation and for improving the livelihoods of many small-scale farmers etc.

Conclusion:

Conclude with way forward.

Desertification is a land degradation process in which a relatively dry land is converted into a desert. In this process land loses its water bodies as well as biodiversity (vegetation and wildlife). Desertification is the ultimate stage in land degradation process.

Global scenario:

- According to a UNCCD report, land degradation due to drought and desertification affects about 1.9 billion hectares of land and 1.5 billion people globally.
- According to United Nations, every year, the world loses 24 billion tons of fertile soil and dry land degradation reduces national domestic product in developing countries by up to 8 % annually.
- Goal 15 of the 2030 Agenda for Sustainable Development states our resolve to halt and reverse land degradation.

Indian scenario

- According to ISRO space application centre
- 82.6 million hectares 25% of land in India is under desertification
- 96.4 million hectares of land in India is undergoing degradation
- There is increase 1.16 million hectare under desertification in just eight years (2005-2013)
- Land Degradation caused ~\$48 billion annually to India (2% of GDP)

In India, the main reason for desertification is loss of soil cover, mainly due to rainfall and surface runoff. It is responsible for 10.98 per cent of desertification in the country. Water erosion and wind erosion are the two other main reasons in India.

Steps by India

- Desert Development Programme.
- Integrated Watershed Management Programme which is now subsumed under Pradhan Mantri Krishi Sinchai Yojana.
- National agriculture policy 2000
- National Mission on Green India which is a part of National Action Plan on Climate Change.



- National Afforestation Programme.
- Soil Conservation in the Catchment of River Valley Projects and Flood Prone Rivers.
- National Watershed Development Project for Rain fed Areas.
- Fodder and Feed Development Scheme - a component of Grassland Development including Grass Reserves
- Command Area Development and Management Programme.
- national water policy 2012
- National forest Policy 1988

Role of UNCCD

- United Nation convention to combat desertification was adopted in 1994
- It was one of the three legally binding agreement put forth in 1992 Rio Earth summit
- It is the sole legally binding International agreement linking environment and development to sustainable Land management
- It is the most comprehensive Global commitment to achieve Land Degradation neutrality
- Global mechanism was established under article 21 of UN CCD specifically to assist countries in the mobilisation of financial resources to implement the convention and address desertification
- Committee on science and technology under article 24 of UN CCD to provide information and advice on scientific and technological matter relating to combating desertification to conference of party (CoP).
- UN CCD 2018-2030 framework to achieve Land Degradation neutrality by 2030 improve life of 1.3 billion people and reduce impact of drought on them

Causes of desertification

- Overgrazing: Animal grazing is a huge problem for many areas that are starting to become desert biomes. If there are too many animals that are overgrazing in certain spots, it makes it difficult for the plants to grow back, which hurts the biome and makes it lose its former green glory.
- Deforestation: When people are looking to move into an area, or they need trees in order to make houses and do other tasks, then they are contributing to the problems related to desertification. Without the plants (especially the trees) around, the rest of the biome cannot thrive.
- Farming Practices: Some farmers do not know how to use the land effectively. They may essentially strip the land of everything that it has before moving on to another plot of land. By stripping the soil of its nutrients, desertification becomes more and more of a reality for the area that is being used for farming.
- Soil erosion: Only top soil supports vegetation, without top soil no vegetation, without vegetation land will degrade into desert.



- Urbanization and other types of land development. As mentioned above, development can cause people to go through and kill the plant life. It can also cause issues with the soil due to chemicals and other things that may harm the ground. As areas become more urbanized, there are less places for plants to grow, thus causing desertification.
- Climate Change: Climate change plays a huge role in desertification. As the days get warmer and periods of drought become more frequent, desertification becomes more and more eminent. Unless climate change is slowed down, huge areas of land will become desert; some of those areas may even become uninhabitable as time goes on.
- Stripping the land of resources. If an area of land has natural resources like natural gas, oil, or minerals, people will come in and mine it or take it out. This usually strips the soil of nutrients, which in turn kills the plant life, which in turn starts the process toward becoming a desert biome as time goes on.
- Natural Disasters: There are some cases where the land gets damaged because of natural disasters, including drought. In those cases, there isn't a lot that people can do except work to try and help rehabilitate the land after it has already been damaged by nature.

Conclusion

More than two billion hectares of degraded land in various parts of the world can be rehabilitated. The techniques include integrated farming, agro-forestry and farmer-managed natural regeneration. Small community initiatives like closure of degraded lands for grazing, curtailing farming, growing fast-growing plants, raising tall trees that serve as a barrier against winds and sandstorms are very effective. Further sustainable management of soil, water and biodiversity are required for protecting the land from further degradation.

What do you understand by land degradation? Do you think restoration of degraded lands would also address water scarcity issue in the country? Discuss.

The hindu

Why this question:

In an address while hosting the COP -14 of UNCCD, prime minister Narendra Modi in his address said that this target would be achieved with an emphasis on “degraded agricultural, forest and other wastelands by adopting a landscape restoration approach.” This would also address water scarcity, enhance water recharge in forests, slow down water run-off and retain soil moisture.

Key demand of the question:

One must explain in detail clearly as to how restoration of degraded lands would also address water scarcity issue in the country.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief explain the excerpts of the speech.

Body:

Explain what you understand by land degradation.

Highlight the status of India and land-use – India faces a severe problem of land degradation, or soil becoming unfit for cultivation. About 29% or about 96.4 million hectares are considered degraded.

Discuss efforts made by India to tackle the issue.



Most importantly explain how addressing land degradation issues will also address the issue of water scarcity.

Conclusion:

Conclude with way forward.

Land degradation is reduction or loss of biological or economic productivity... resulting from land uses or from a process or combination of processes, including ... human activities.

Indian scenario

- According to ISRO's Space Application Centre
- 96.4 million hectares of land in India is undergoing degradation
- 82.6 million hectares 25% of land in India is under desertification
- There is increase 1.16 million hectare under desertification in just eight years (2005-2013)
- Land Degradation caused ~\$48 billion annually to India (2% of GDP)

In India, the main reason for desertification is loss of soil cover, mainly due to rainfall and surface runoff. It is responsible for 10.98 per cent of desertification in the country followed by vegetation degradation (8.91 percent) and wind erosion (5.55 percent).

Land degradation is a global problem largely related to agricultural use. Causes include:

- Land clearance, such as clearcutting and deforestation
- Agricultural depletion of soil nutrients through poor farming practices
- Livestock including overgrazing and over drafting
- Inappropriate irrigation and over drafting
- Urban sprawl and commercial development
- Vehicle off-roading
- Quarrying of stone, sand, ore and minerals
- Increase in field size due to economies of scale, reducing shelter for wildlife, as hedgerows and copses disappear
- Exposure of naked soil after harvesting by heavy equipment
- Monoculture, destabilizing the local ecosystem
- Dumping of non-biodegradable trash, such as plastics
- Invasive Species
- Soil degradation, e.g.
 - Soil contamination
 - Soil erosion
 - Soil acidification



- Loss of soil carbon

Land restoration includes

Restoration of vegetation - vegetation cover prevents soil erosion, it increases water run-off time thus giving time for water to percolate into earth=> improves ground water level. Forest is considered as lakhs of check dams.

Restoration of soil - this in turn enhances the life support capability of the land, hence helps in restoration of vegetation.

Restoration of water bodies - this includes restoring wetlands, lake, river etc.

In reality vegetation, soil and water bodies all are inter dependent. Ultimately results in enhancement in water availability.

Thus in India where 67% of land is dry land and 30% of land is under degradation, reversing the degradation will also have potential to solve problem of water scarcity.

Mostly in southern states there is an acute shortage of water example Chennai in 2019 has declared emptying of ground water. Restoring of ground water table by using traditional and scientific water harvesting technique and conserving wetland like Pallikarini wetland will certainly bring back life to water bodies.

Example - Revival of Alwar river in Alwar dist. Of Rajasthan by Rajendra Singh (water man of India). He helped to build ~9000 Johads, Check dams.

India had joined "Bonn Challenge" a global effort to bring 150 million hectares of the world's deforested and degraded land into restoration by 2020, and 350 million hectares by 2030.

India pledged to bring into restoration 13 million hectares of degraded and deforested land by 2020, and an additional 8 million hectares by 2030.

At COP 14 of UNCCD India raised the Target of 21 million hectares to 26 million hectares between now and 2030, to be restored.

Other Steps by India

- Desert Development Programme.
- Integrated Watershed Management Programme which is now subsumed under Pradhan Mantri Krishi Sinchai Yojana.
- National agriculture policy 2000
- National Mission on Green India which is a part of National Action Plan on Climate Change.
- National Afforestation Programme.
- Soil Conservation in the Catchment of River Valley Projects and Flood Prone Rivers.
- National Watershed Development Project for Rain fed Areas.
- Fodder and Feed Development Scheme - a component of Grassland Development including Grass Reserves



- Command Area Development and Management Programme.
- National water policy 2012
- National forest Policy 1988

Conclusion

It is land over which humans are surviving with the help of ecosystem services provided by Flora and Fauna. Degradation of land would mean degradation of human life. Water is becoming scar resource and land degradation is fueling it. Restoration of land provide us the chance to handle water scarcity problem with ease. Hence conservation efforts are necessary along with fast development and urbanisation. It is also enshrined in SDG 15. Development without sustainability is worse than on development at all.

The IPCC says total global emissions will need to fall by 45% from 2010 levels by 2030 and reach net zero by 2050. In this context, elaborate how differential carbon tax would be able to finance climate mitigation strategies across the world?

The hindu

Climate change is a global problem, and a global problem needs a global solution. The most recent Intergovernmental Panel on Climate Change (IPCC) report suggests that we, as humankind, might have just over a decade left to limit global warming.

The IPCC says total global emissions will need to fall by 45% from 2010 levels by 2030 and reach net zero by 2050. If these targets are not met, tropical regions of the world, which are densely populated and happen to be mainly concentrated in the global South, are likely to be most negatively affected because of their low altitudes and pre-existing high temperatures. Some impact of this was already felt during the Tamil Nadu water crisis this year.

Research shows that carbon taxes effectively reduce greenhouse gas emissions. There is overwhelming agreement among economists that **carbon taxes** are the most efficient and effective way to curb climate change, with the least adverse effects on the economy.

Benefits:

- The burden of impact is shared in a just manner among the countries
- Example - most of the carbon emission was done by countries of the north USA, China, and UK etc. But the most IMP acted are tropical countries (Samoa Maldives Congo Nigeria)
- These countries do not have enough resources to switch to green technology to get to lower the emission level
- To fulfill the emission target Global contribution will be necessary. At the same time burden of adjustment must be in proportion to contribution in Global emission.

Advantages of having Global carbon tax:

- Countries emitting more than that of global average per capita emission will pay. The tax, countries that are emitting less than Global average will receive money from the tax paid.



- The tax paid and received will be in proportion to the distance of national per capita emission from global average per capita emission.
- Under this tax those countries that have brought down their per capita emission will also get sum from the tax pool. Example France and UK who earlier contributed much to Global emission will be in the list of 135 country who are the receivers too, because they have brought down their per capita emission.
- The tax wants the entire nation to climb down the mission ladder without necessarily having to give up on their standard of living.

Conclusion

Global warming is a concern for survival on earth Global partnership on equitable basis is necessary to award global warming some of the method for doing this are global carbon tax on principle of Common but differential responsibility.

“Economic diversification is imperative to cope with climate crisis”, justify the statement with suitable examples.

[Downtoearth](#)

Why this question:

The article deals in detail as to in what way climate crisis can be addressed better if economies are diversified.

Key demand of the question:

One must discuss the significance of diversification of economy and its impact on mitigating the climate crisis facing the world.

Directive:

Justify – When you are asked to justify, you have to pass a sound judgement about the truth of the given statement in the question or the topic based on evidences. You have to appraise the worth of the statement in question using suitable case studies or/ and examples.

Structure of the answer:

Introduction:

Explain what you understand by climate crisis.

Body:

Explain that the Developing countries dependent on commodities need to diversify their economies to mitigate the increasing climate change risks and achieve the United Nations-mandated Sustainable Development Goals (SDGs), according to a new report by the UN Conference on Trade and Development (UNCTAD).

Explain what are the possibilities and in what way Climate crisis poses an existential threat to commodity-dependent developing countries and will result in the collapse of some economies if decisive action is not taken now.

Conclusion:

Conclude with way forward.

Economic diversification is the process of shifting an economy away from a single income source toward multiple sources from a growing range of sectors and markets. Traditionally, it has been applied as a strategy to encourage positive economic growth and development.

In the context of **climate change adaptation**, it takes on a new relevance as a strategy to diversify away from vulnerable products, markets, and jobs toward income sources that are low-emission and more climate resilient.



While natural disasters like heatwaves, floods, hurricanes, rising sea levels and increase in sea surface temperature destroys agriculture, affect crop yield and fish production; extreme weather events lead to destruction of infrastructure, affecting the profitability and attractiveness of projects.

Impact on natural resource

These disasters can also lead to ‘physical stranding’ of natural resources, rendering them impossible and unprofitable for use, the report said.

These would adversely affect the commodity-dependent developing countries (CDDCs), especially those who are highly dependent on these resources for their economic well-being.

Further, in the race to limit greenhouse gas emissions, some natural resources in the energy sector also face the problem of ‘regulatory stranding’. The best example is the use of coal, which is increasingly being reduced and eliminated as the primary energy source.

With renewable energy, especially solar energy, becoming cheaper, there would be a shift towards them. Thus, even without regulatory stranding, the thermal power stations would become economically unattractive, the report said.

China, the world’s largest importer of commodities, has resolved to increase the share of non-fossil fuels in the country’s primary energy consumption, as part of its commitment to climate change mitigation. This would impact the exporters of fossil fuels to China, resulting in revenue loss in export market. They would also face problems in finding alternative and profitable markets.

Angola, for example, the largest African exporter of oil to China, would be the hardest hit. In 2017, 47 per cent of its total merchandise export revenue was oil exports to China.

Why should the economies be diversified?

Sectors such as tourism, agriculture, fisheries, forestry and energy production are all sensitive to the adverse effects of climate change.

The negative impacts of climate change on these sectors are of concern to all countries, especially for those whose economies are primarily driven by climate sensitive sectors. In this context it is imperative for all countries to diversify their economies either by expanding climate sensitive sectors or by promoting adaptation measures that increase resilience within the sector.

Economic diversification is one component of economic resilience and is also a key component of sustainable development as it will assist countries in reducing poverty and generate employment in the long run.

In order to eradicate extreme poverty, there needs to be an economic transformation towards sustainable development. This transformation needs to be supported institutions, incentives and investments and is an essential factor in adapting to changing conditions.

Recently, *UNDP’s supports in pursuing economic diversification strategies have been employed in a wide range of sectors. Tourism, agriculture and energy are a few examples.* These efforts are about shifting strategies to respond to emerging climate changes and to develop systems that are resilient yet sufficiently flexible that they enable people to respond to change.

Conclusion:



Climate crisis poses an existential threat to commodity-dependent developing countries and will result in the collapse of some economies if decisive action is not taken now. Now, more than ever before, these countries need to assess their diversification potential and reduce their commodity dependence, which for decades has kept them exposed to volatile markets and climate change.

At a time when we are looking for traces of water in search of life on the moon, we should give greater importance to conserving water on earth. Comment on the statement with emphasis on need for a people's movement to conserve water

pib

Why this question:

The question intends to discuss the urgency of water conservation through an effective people's movement.

Key demand of the question:

One must discuss the need to encourage people's movement to overcome and face the water crisis facing the country.

Directive:

Comment – here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

Discuss in short the looming crisis scenario of water.

Body:

Explain in what way people's participation – a Jan Andolan and holistic approaches are crucial to ensure the success of schemes and policies addressing the water crisis currently witnessing the country.

Suggest solutions to address the crisis, what should be the way forward, in what ways one can address the various issues leading to water scarcity.

Conclusion:

Conclude with solutions and emphasize on the need of Jal Andolan.

Clean, fresh water is a limited resource. With all the severe droughts happening in the world, the limited supply of fresh water is becoming one of our most precious resources. Every person on earth needs water to survive. Without it, many of us would get sick and even result in death.

While almost 70% of the Earth is made up of water, many parts of the world suffer from clean water shortage. Conserving water is important because it keeps water pure and clean while protecting the environment.

Conserving water means using our water supply wisely and be responsible. As every individual depends on water for livelihood, we must learn how to keep our limited supply of water pure and away from pollution. Keeping our water supply safe and pure will protect the water for the generations to come.

Availability of Water in India

- India receives an average rainfall of about 1170 mm which corresponds to an annual precipitation of about 4000 BCM (Billion Cubic Meter) including snowfall.
- However, there is considerable variation in rainfall both temporally and spatially.



- Nearly 75% of this i.e., 3000 BCM occurs during the monsoon season confined to 3 to 4 months (June to September) in a year.
- On the one side, there are surplus states like Uttar Pradesh, Himachal Pradesh and on the other side, there are water scarce states like Maharashtra, Karnataka, Tamil Nadu, Rajasthan and parts of Gujarat.
- Also, some states that are called as water abundant states like Punjab, Haryana have their own problems.
- After accounting for evaporation, the average annual water availability in the country has been assessed as 1869 BCM.
- It has been estimated that owing to topographic, hydrological and other constraints, the utilizable water is 1123 BCM which comprises of 690 BCM of surface water and 433 BCM of replenishable ground water resources.

Challenges of Water Management

- Less pre-monsoon rainfall and delay in monsoon combined with unprecedented heat make it difficult to control the supply of water in the country.
- The stress on water will increase with rise in population, in that case, managing the demand for water, will become difficult.
- India is now facing a water stressed situation. Globally, the standard for water-stress situation is 1700 cubic metres of availability of water per person. India, at present, is just below that.
- India is not yet facing that situation which is globally called as water-scarcity situation.
- At the time of independence, the availability of water in the country was around 5,000 cubic metre per capita per annum, higher than what was required then. Over the time, India has failed to develop that extra availability.
- The groundwater in most of the parts of northwestern India is now available at 100 metres below the ground. With the present rate of extraction, in future, the groundwater will be available at 200 or 300 metres below the ground.
- Level of water in the reservoirs is going down. At present, the 91 reservoirs that Central Water Commission (CWC) monitors are around 19% of their life storage.
- Recently, in some states, area under water intensive crops like rice and sugarcane has increased. This is linked with the procurement and pricing policy of the government. It so happens that owing to the higher production of such crops, the government offers several benefits; this tempts other farmers as well to grow such crops, thus creating a vicious circle.
- The participation of individuals, NGOs and different communities in the water management process is quite missing.
- The role of the Jal Shakti Ministry is quite limited in handling the water crisis situation in the country until the participation of people is there for using the water prudently, for switching from the crops which are water intensive to the crops that are less water intensive.



- Due to climate change, India in the near future will witness an increase in hot spells, change in rain patterns, thus, the problem of frequent floods and frequent droughts.
- The Groundwater (Sustainable Management) Bill, 2017 drafted by the Ministry of Water Resources, River Development & Ganga Rejuvenation that provides new bases for regulating groundwater as a public resource and measures at aquifer level, has been forgotten.

Steps Taken by the Government in this direction:

- Across the country, states are taking the lead. In Rajasthan, there is a scheme called 'Mukhya Mantri Jal Swavlamban Abhiyan'. One of its objectives is to ensure effective implementation of water conservation and water harvesting related activities in rural areas.
- Maharashtra has launched a project called 'Jalyukt-Shivar', which aims to make 5000 villages free of water scarcity every year.
- The Telangana government has launched a mission called Mission Kakatiya, the objective of which is to enhance the development of agriculture based income for small and marginal farmers, by accelerating the development of minor irrigation infrastructure, strengthening community based irrigation management and adopting a comprehensive programme for restoration of tanks.
- Concerned about the water crisis in rural areas, the Prime Minister of India has recently written a personal letter to 'gram pradhans' (village chiefs) requesting them to conserve rainwater during the forthcoming monsoon.
- The Prime Minister has recently also said that the government will ensure piped drinking water to every household in the next five years. It seems to be one of the most ambitious projects that are taken in the last few decades.

Interlinking the Rivers

- The Interlinking River Project is a long term project. If one considers, the Ken-Betwa Linking project, the MoU was signed 20 years back and the groundwork on the project has not started yet.
- There always remains a lot of political opposition to the 'Interlinking the Rivers' project.
- It is so that the northern states face the situation of flood at the time of monsoon and water is required by the southern states in the dry months. Whether the project will be able to solve this problem or not is a matter of concern.
- Interlinking the rivers has its own ecological disadvantages, like in the case of the Ken-Betwa project; half of the Panna Tiger Reserve will get submerged. Also, there will be huge displacement of people. The cost involved is quite high, this raises the questions over its usefulness.
- Localized water conservation efforts, instead, is a solution. 20-25% of the water bodies, that can easily supply water to the local population, have damaged in the last 50 years. With the help of local communities, water bodies in a particular region can be easily managed.

Suggestions:



- Time has come for India; it needs a rigorous program on water efficiency as it has on energy efficiency. Just the way, India has a star-setting system for energy using appliances; it needs to have the same sort of setting for water using appliances.
- Managing the demand side of water management is crucial as India cannot increase the per capita availability of water.
- At present, the geography of water is quite different from the political geography of the country. India needs mechanisms which bring relevant people together.
- For instance, ground water, today, is the biggest single source of irrigation. It has even outweighed the surface irrigation. India has no system of coordination amongst users of the given aquifers, though it has started mapping its aquifers.
- There are countries where there is a law that states that if a number of people are sharing an aquifer, then such people must have a contract on how much each of them can draw.
- Almost all major rivers in the country are shared between the states and perhaps, it is premature to expect that the states will surrender their authority over the river basins in their respective territories. But, at least, they can come together for coordination over the river basins and sharing the relevant information. The Central Government can play a major role in bringing the states together.
- The country needs to have a specific plan for water-stressed states. There will be more efficient usage of water especially in the rural areas if the government starts charging for its water service on the lines of its electricity supply service. But the Government needs to ensure that it has the proper infrastructure to supply water to the houses.
- The government needs to encourage local participation for conserving water in the country. Hiware Bazar is a good example.
- Hiware Bazar, a village in Maharashtra's drought-prone Ahmednagar district, was sliding into an abyss after its environmental degradation. But in less than a decade it turned itself around into one of the most prosperous villages of the country. It used funds from government schemes, to regenerate its natural resources--forests, watershed and soil--led by a strong village body. The village very well manages the 300-400 millimeters (mm) of rainfall that it receives every year.
- Incentive based water conservation in rural parts in the water stressed areas is another solution, for example, if a particular level of groundwater level is maintained, higher MSP can be provided to the farmers of that region.
- Water-use efficiency in agriculture can be ensured by making farmers aware and by providing them, on the ground, technologies like the one related to water resistant crops.
- In-situ water conservation techniques like rain water harvesting, check dams need to be continued.

For the time being, there is a need to design and develop around water management. Also, water management needs to be the central focus of efforts in the agriculture sector and the environment improvement. Right water management will lead to right land management, health management and education management.



The Government needs to holistically handle the supply as well as the demand side of water management and everybody in the society, i.e. the central government, the state governments (water, being the state subject), citizens, NGOs and companies need to come together to tackle water crisis in the country.

With funding from developed nations barely a trickle, India and other developing nations must take hard calls on growth vis-a-vis climate change action. Discuss.

Financialexpress

Why this question:

The article details upon the climate call made by India ahead of United Nations Climate Action Summit. It also discusses the discussion paper titled Climate Summit for Enhanced Action: A Financial Perspective from India released by the government of India.

Key demand of the question:

One has to explain the need for reinvented funding mechanisms to deal with climate change action.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief discuss the context of the funding mechanisms presently in action for dealing with climate change.

Body:

Explain that with funding from developed nations barely a trickle, India and other developing nations must take hard calls on growth vis-a-vis climate change action. India, thus, has said that it will 'suitably recalibrate' its action only after the global stock-take of progress under the Paris Agreement takes place in 2023. While global climate negotiations have focused on the principle of common but differentiated responsibilities, and countries' respective capabilities—this acknowledges the fact that developed countries have shrunk the emissions budget for developing nations—the fact is that developed nations gave just \$38 billion in climate finance in 2016, against the \$100 billion a year by 2020 that had been agreed to in the 2009 climate negotiations.

Conclusion:

Conclude with Unless developing nations force their developed counterparts to change course, the climate agenda would fail, with devastating consequences for all.

Climate change is certainly without argument the most serious global environmental crisis that we face. It is not the only environmental problem, but it is unique in its multi-scalar characteristic, from the global to the local. And, in many ways, it is arguably the most immediate of our problems.

At one level, for many people climate change has become an existential problem, a problem that risks undermining the conditions for productive life and therefore a problem that does not override but certainly permeates all kinds of other issues. For many others, climate change is a distant problem that is overwhelmed by more immediate issues.

With funding from developed nations barely a trickle, India and other developing nations must take hard calls on growth vis-a-vis climate change action. India, thus, has said that it will 'suitably recalibrate' its action only after the global stock-take of progress under the Paris Agreement takes place in 2023. While global climate negotiations have focused on the principle of common but differentiated responsibilities, and countries' respective capabilities—this acknowledges the fact that developed countries have shrunk the emissions budget for developing nations.



Though India is not responsible for the stock of CO₂ in the atmosphere, we must do far more than we are doing today to call the developed countries to account.

India contributes to only 6 or 7% of global emissions but we are one of the most vulnerable countries.

Adaptation and Mitigation:

We need to start taking climate change more seriously, particularly on the adaptation side, because we really have a lot to be concerned about.

And on the mitigation side, we have to be careful as we may not be fully exploring the scope of intersections between 'a low carbon agenda' and 'a development agenda'.

India still has huge development deficits and unfortunately, the intersection between erasing development deficits and genuine climate change adaptation has been very poorly explored and the entry point for this conversation should be development deficits.

This is because 'development is the first line of defence against adaptation'.

In adaptation, our focus should therefore be on understanding what our development deficits are.

For example, to say that we need to improve, find a way for cleaner transportation, shouldn't actually lead to a conclusion that it should lead to more electric vehicles – the first priority has to be improved and more accessible public transport.

We need to understand these development deficits from a multi objective point of view, in terms of economics and access, in terms of local pollutants like air pollutants, climate change and mitigation, and liveability of cities, we need this more multi-faceted and analytical framework.

India can bring development gains and that also lead to mitigation benefits.

For example, the way we design our cities: we want more sustainable cities, we want cities with less congestion, with more public transport because we want cities that are more liveable. Those kinds of cities will also automatically be low carbon cities.

Discuss the scientific consensus on the causes and consequences of climate change and also while Science, experience and public alarm are increasingly on the side of action, the national politics in most of the countries are moving in opposite direction. Critically examine.

[The hindu](#)

[Indianexpress](#)

Why this question:

The article deals with the happenings around the recently convened global Climate Action Summit.

Key demand of the question:

One has to analyse in detail the scientific consensus on the causes and consequences of climate change and in what way the climate diplomacy needs to be put in place and set in the right orientation.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.



Structure of the answer:

Introduction:

In brief narrate the context of the question.

Body:

Discuss that the most scientists agree that the climate changes caused by global warming will never be completely predictable, but that they present serious risks—more extreme temperatures (hot and cold), greater storm intensity and frequency, more frequent droughts and floods, and rising sea levels—that warrant immediate efforts to reduce emissions from fossil fuels

Explain then what role does human activity play in the current global warming trend? What are effects of it and how should it be tackled.

Conclusion:

Conclude by suggesting short term and long term solutions for the same.

This summer saw Delhi-like temperatures across southern Europe; Hurricane Dorian rendered large parts of the Bahamas unlivable; witnessed simultaneous raging fires in the Amazon, central Africa and even Siberia. Heat wave in France and Germany. Still, concentrations of carbon dioxide continue to rise. Citizen Protests: The growing evidence of climate change — scientific and experiential — has pushed the global youth into social action.

While more noticeable in the global North, young people are also mobilizing in India and other countries in the global South against inaction on climate change around the world.

These aspects could have pressurized the national politics in country into climate action but, the trend is opposite of what is required. Nationalism in multiple countries has created a short-term, look-out-for-our-own mentality to address climate change. In the United States, President Donald Trump has actively rolled back measures in the electricity sector and actions to limit methane emissions in the name of competitiveness. In Brazil, President Jair Bolsonaro has made it clear he sees environmental protections as limiting Brazilian business.

In this background, will UN Summit bring any changes?

The Secretary-General is pinning hopes on a two track approach.

Diplomatic pressure: to enhance their pledges for action made as part of the Paris Agreement. But, the response is underwhelming. Accelerating energy transition towards low-carbon energy.

What does this canvas of global climate politics mean for India?

First, that the prospects of effective global action required to address climate change are so weak is extremely bad news for India.

Second, India has the potential to show the pathway to accelerating action on climate change even while pursuing its development interests.

Third, such a domestic message would position India to be a true global climate leader, rather than a leader only among climate laggards.

Conclusion:

Make accelerated climate action congruent with an enlightened notion of national interest by focusing on key actions in rapidly changing areas such as energy and urbanization.



The increase in global temperatures and the associated natural disasters will make millions of people climate refugees. Analyse the statement in the light of recently released IPCC report on Ocean and Cryosphere and suggest the way forward.

Indianexpress

Why this question:

The latest report, on Ocean and Cryosphere, is the last in a series of three that the IPCC had been asked to produce to assess the impacts of climate change on specific themes.

Key demand of the question:

The answer should bring out the highlights of the latest IPCC report and significance of the urgency to curb global warming to mitigate the effects of climate change and disasters occurring due to it.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

In brief explain how the recent report has given further strength to growing demands for more aggressive climate action from world leaders, especially those representing the big emitters.

Body:

Explain that the latest report, on Ocean and Cryosphere, is the last in a series of three that the IPCC had been asked to produce to assess the impacts of climate change on specific themes. The first of these, examining the feasibility of restricting global rise in temperatures to within 1.5°C from pre-industrial times, was submitted in October last year.

Discuss the highlights of the report in detail.

What are the issues and challenges world is facing on climate front? And what should be done to overcome?

Conclusion:

Conclude with way forward.

Recently the Intergovernmental Panel on Climate Change (IPCC) made public ‘**The Special Report on the Ocean and Cryosphere in a Changing Climate**’ which underlined the dire changes taking place in oceans, glaciers, and ice-deposits on land and sea at the United Nations Climate Summit underway in the United States. Climate change impacts on homes and infrastructure, food and water and human health. It will bring about a forced migration on an unprecedented scale.

Key Findings of the Report:

- Over the 21st century, the ocean is projected to transition to unprecedented conditions with increased temperatures, further ocean acidification, marine heat waves and more frequent extreme El Niño and La Niña events.
- Ocean Warming: Global Ocean has warmed unabated since 1970 and has taken up more than 90% of the excess heat in the climate system.
- Since 1993, the rates of ocean warming and marine heat waves have very likely doubled in frequency and intensity.
- Global Mean Sea-Level: It has increased by 16 cm between 1902 and 2015, and that the rate of increase had doubled of late.



- Between 2006 and 2015, the global mean sea level recorded an average rise of 3.6 mm per year, which was more than double of 1.4 mm per year recorded in the first 90-year-period of the 20th century.
- Sea-level rise is not globally uniform and varies regionally. Regional differences, within 30 % of global mean sea-level rise, result from land ice loss and variations in ocean warming and circulation
- The Melting of Glaciers: Between 2006 and 2015, the Greenland ice sheet lost ice-mass at an average rate of 278 billion tonnes every year (e.g. Okjokull glacier of Iceland), which was enough to result in a global sea-level rise of 0.8 mm per year. During the same period, the Antarctic ice sheet lost a mass of 155 billion tonnes on an average every year.
- Snow cover outside these two poles, like the glaciers in the Himalayas, together lost an average of 220 billion tonnes of ice every year.
- The melting glaciers are the dominant source of sea-level rise, exceeding the effect of thermal expansion of ocean water (due to rising temperatures).
- Since the mid-20th century, the shrinking Cryosphere has led to predominantly negative impacts on food security, water resources, water quality, livelihoods, health, and well-being, as well as the culture of human societies, particularly for Indigenous peoples.

Climate-related displacement and migration is set to be the greatest challenge of our era. While there is a general consensus that global warming impacts us all, the role it will play in future human migration is often underestimated. Climate change disproportionately impacts developing countries, and more specifically fragile states.

Communities in arid and semi-arid lands are particularly vulnerable to the effects of climate change. Exposure to extreme temperature irregularity and rapid rainfall fluctuations makes these communities more prone to recurring drought or flooding.

What needs to be done?

Creating innovative finance mechanisms - The current humanitarian finance system is reactive and in desperate need of reform. As humanitarian crises become more complex, the demand for funding is struggling to keep up with the supply available.

The global humanitarian funding requirement for 2019 was a record \$21.9 billion and is expected to increase further. By 2030, humanitarian assistance costs are estimated to almost double in one decade by rising to an annual rate of \$50 billion, if current trends continue.

The issue is that, as crises become more protracted, the coordinated response rate also rises. According to the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), the average UN coordinated humanitarian response rate is currently nine years – this is up from the average length of 5.2 years recorded in 2014.

With the continuation of crises, multi-year funding is needed to help close the gap. The scope for non-traditional innovative sources of finance is enormous. Creating financial solutions to reach more of those at the bottom of the pyramid would be a major contribution to addressing this pressing issue and helping build local resilience.



In the past couple of years, we have had green bonds that have been issued globally to fund climate-friendly projects and, more recently, a humanitarian impact bond that helped fund the building and operation of physical rehabilitation centres in Nigeria, Mali and the Democratic Republic of Congo. Why can't we have a financial instrument, embedded with humanitarian principles, that addresses climate-induced humanitarian problems?

Prioritizing gender- Climate change induced migration is adding a new layer of complexity to the area of gender, as women and girls are more vulnerable to the effects of climate change impacting education, maternal health and gender-based violence. In cases of climate change disasters, such as droughts, girls are more likely to be withdrawn from school, as women and girls are often in charge of water collection. In Africa alone, it is estimated that 17 million women and girls collect water every day.

With climate change disrupting their education, young girls are reportedly being taken out of school to marry early, creating a worryingly higher number of "child brides". The repercussions have a profoundly negative impact on a young girl's mental, physical and overall wellbeing.

As for health, 60% of all preventable maternal deaths take place in settings of conflict, displacement or natural disasters, because women and adolescent girls cannot access critical health care.

Furthermore, in situations of climate change disasters, there is clear evidence that shows an increase in sexual and gender-based violence against women and girls both during and after disasters.

The time has come to integrate a gender perspective into the climate change agenda by putting women and girls at the centre of design and decision-making. Gender-sensitive policies must be identified and prioritized to help build resilience to climate-induced disasters.

Disaster and disaster management.

The recent Godavari boat tragedy underlines the negligence on part of various government agencies of the state of Andhra Pradesh who failed to follow the safety mandate suggested. Critically examine.

The hindu

Why this question:

As many as 12 people died on Sunday afternoon when a tourist boat carrying 61 persons on board capsized in the Godavari River near Devipatnam in Andhra Pradesh.

Key demand of the question:

The answer must address the underlying causes of the incidence and bring out the lacunae on the part of the government efforts to ensure safer travels across the river despite known possibilities and risks associated.

Directive:

Critically examine – When asked to 'Examine', we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

In brief narrate the background of the incident.

Body:



First explain why the incident occurred.

What were the lacunas on part of the government – Though the boat has license, it was not yet clear whether it had the required permission to ferry tourists since all boat operations in the river have been prohibited because of the flood.

Explain that River Godavari has been in spate for the past few days and over 5.13 lakh cusecs of floodwater was flowing.

Explain that Despite frequent boat accidents in the Godavari and Krishna rivers claiming several lives, no precautionary measures are being taken to prevent them.

Conclusion:

Conclude with solutions that should be provided urgently both in short term and long term to address the situation.

A boat capsized recently in the Godavari leaving many dead and missing. The state of Andhra Pradesh has been experiencing a familiar ring of boat tragedies in the recent past.

In the latest boat tragedy on the Godavari in which some tourists drowned and others still missing. The private operator took on board over 70 tourists who were hoping to see the scenic beauty of Papikondalu. The operator ventured into the river that has been in spate for days, without any permission.

The inexperienced crew could not cope with a sudden current of water at Kachuluru, one of the most dangerous spots enroute.

The boat tilted and capsized within minutes and only those wearing life jackets could save themselves.

The Andhra Pradesh government announced a hefty ex-gratia, promises deterrent action against all those responsible and initiates steps to prevent such tragedies.

Facts about the past tragedies:

- Police records show over 100 people perishing in boat mishaps during the last three years.
- The major one being on the Krishna in November 2017 when 22 tourists lost their lives.
- These tragedies were avoidable if simple precautions were in place like,
- Having only experienced crew with valid licenses,
- Provision of life jackets for all,
- Not setting out when the river is in full flow.

Were any lessons learnt from these recurring mishaps?

- The accident on the Krishna jolted the N. Chandrababu Naidu government into action and a committee was formed to formulate preventive steps.
- The committee highlighted the multiplicity of the departments concerned ranging from irrigation to director of ports with permitting rides and monitoring and checking illegal ones.
- It pointed to lack of coordination. Eg: When the river touches the danger mark, the irrigation department should send out a warning to all concerned not to allow any rides.
- Without a single regulatory body, the result was this typical bureaucratic phenomenon of passing the buck.



- The committee suggested making the directorate of ports as a nodal agency and the AP Inland Vessel Rules were brought into effect.

To prevent such man-made tragedies, the government must pin responsibility on officials instead of resorting to mere palliative steps.

Linkages between development and spread of extremism.

Global Co-operation and intelligence-sharing have become quintessential to fight the new age terrorism which has global reach and sophisticated tools at its disposal.

Discuss.

[Newindianexpress](https://www.newindianexpress.com)

Why this question:

Defense minister Rajnath Singh recently suggested that bio-terrorism is among new threats facing Armed Forces, at the Medical Services of SCO countries. He called on them to find effective ways to deal with new threats posed by advancing battle field technologies.

Key demand of the question:

The question intends to examine the changing techniques and tools of terrorism with coming of technology and rising expanse of terrorism.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief explain why terrorism is becoming a difficult domain to handle day by day.

Body:

First discuss what factors are making terrorism so dynamic – coming of newer technologies, newer techniques of warfare etc.

Then explain the urgency of the global community to come together to tackle the menace.

Quote examples such as that of bioterrorism and how one can handle the threats arising from it.

Conclusion:

Conclude with what actions should countries across the world should take and what should be the way ahead in future.

With advancement in technology the nature of globalization has changed from traditional to new forms. New forms of terrorism are emerging which is acquainted with the use of new technology. New age of terrorism is spread through network of loosely connected cells and support groups.

Different faces of terrorism:

- **Religious fundamentalism** - terror attacks motivated by the religion or class of Civilization theory. Example Isis are Islamic Fundamentalist
- **Biological and chemical terrorism** - includes use of Biological agent like virus bacteria fungus are chemical agents like Agent Orange etc.
- **Loan wolf attack** - using social media loan words are prepared by terror groups to attack.
- **Cyber terrorism** - large scale destruction of computer network using computer virus like stuxnet.



- Nuclear weapons and other mutually destructive weapons

Why new-age terrorism is difficult to fight?

- Globally spread through sleeper cells network rather than local groups
- There is no consensual definition of terrorism in the international convention to combat terrorism
- Multiplier effect and attraction of used to it apps and website that trigger religious.
- Terrorist groups are exploiting conflict zones and ungoverned territories to find new recruits.
- Pakistan occupied Kashmir is a major terror hub for Jaish-e- Mohammed.

Solution

- Hamburg statement in G20 summit on combating terrorism and Allianz the need for International cooperation in intelligence sharing.
- All countries should proportionately contribute to fund International investigative Agencies like Interpol
- Public private partnership- particularly with communication service provider and administration of various social media platform like WhatsApp Facebook.
- Efficient implementation of decisions of financial action task force car financing of terrorism.
- Bilateral and multilateral agreements am at sharing Intelligence and security inputs. Example India has provided security alert before the Easter bombing in Sri Lanka
- Strengthening sanitary and phytosanitary laws under WTO to prevent bioterrorism

Conclusion

Terrorism in developing country is a menace to the social economic and political development. Given the Global expense it can only be detected by forging anti-terrorism Alliance on a global scale.

Challenges to internal security through communication networks, role of media and social networking sites in internal security challenges, basics of cyber security; money-laundering and its prevention

What is Darknet? Are Dark Web and Deep Web one and the same? Discuss in detail the associated concerns of the same.

The hindu

Why this question:

The Kerala police have set up a state-of-the-art lab complete with enabling software to intervene and crack down on the rising criminal activities over the Darknet, known as the underworld of the Internet.

Key demand of the question:

One has to clearly explain the concepts of Darknet and Deep Web. Explain in what way the two are different from each other.

Directive:



***Discuss** – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.*

Structure of the answer:

Introduction:

In brief define what is DarkNet.

Body:

Explain in detail that Dark Net is an umbrella term describing the portions of the Internet not open to public view or hidden networks whose architecture is superimposed on that of the Internet and on the contrary Deep Web is the area of the Internet which is not accessible through search engines. What can be accessed through search engines is called Surface Web.

Discuss in depth the concerns associated with the two.

Conclusion:

Conclude with way forward.

- Dark Net (or Darknet) is an umbrella term describing the portions of the Internet not open to public view or hidden networks whose architecture is superimposed on that of the Internet.
- Darknet provides anonymity to the users.
- Darknet is often associated with the encrypted part of the Internet called Tor network where illicit trading takes place such as the infamous online drug bazaar.
- A variety of Darknet markets (black markets) allow for the anonymous, illegal buying and selling of drugs and other illegal or controlled substances, such as pharmaceuticals, and weapons.
- The services and websites running on the Darknet is the dark web.

Are Dark Web and Deep Web one and the same?

- Deep Web is the area of the Internet which is not accessible through search engines. What can be accessed through search engines is called Surface Web.
- To get into the Deep Web one should know the right address.
- Dark Web is part of the Deep Web.
- While the Deep Web is accessible, the Dark Web is deliberately hidden.
- While incognito mode disables browsing history and web cache, the Dark Web is shielded by specialised software.
- Since the real world money trail carries the danger of exposure, Dark Web operators transact in virtual currencies, the most popular being Bitcoins.

What are the concerns involved?

The relative impermeability of Darknet has made it a major haven for drug dealers, arms traffickers, child pornography collectors and other criminals involved in financial and physical crimes so much so that one can buy anything from tigers to hand grenades to any kind of narcotic substances, provided the potential buyer finds the right website on the Darknet.

Details:



- Kerala Cyberdome is a technological research and development Centre of Kerala Police Department conceived as a Cyber Centre of excellence in cybersecurity as well as technology augmentation for effective policing.
- The Kerala police have set up a state-of-the-art lab complete with enabling software to intervene and crack down on the rising criminal activities over the Darknet, known as the underworld of the Internet.
- A pool of four analysts has been trained and deployed in shifts for round-the-clock monitoring of Darknet.
- Since the expertise for imparting training in tracking the Darknet is limited in the country, the analysts were given 14-day training by roping in an expert from Israel.



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Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

If the government is serious about Make in India for APIs and boosting R&D spending by pharmaceutical companies, it must shun price controls as a policy measure. Discuss measures required to be taken by the government in augmenting the Pharma sector. (250 words)

Financialexpress

Why this question:

The article captures that the government is mulling over excluding medicines made from locally manufactured active pharmaceutical ingredient (API)—the key raw material for the production of a drug—from price control. The move, according to a Mint report, is aimed at pushing manufacture of APIs in India to reduce import dependence.

Key demand of the question:

One has to discuss in depth the need to do away the price controlling policies by the government with respect to APIs in the pharma industry so as to boost the Make in India drive for the sector.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief define what APIs are.

Body:

Discuss the context of the question as to what steps the government is trying to take.

Explain in what way the price control was affecting domestic manufacture of pharma products.

Discuss the nuances of Draft Pharmaceuticals Policy 2017,

Justify that if the government is serious about Make in India for APIs and boosting R&D spending by pharmaceutical companies, it must shun price controls as a policy measure. To keep medicines affordable for the masses, it must subsidize through bulk purchases for its Jan Aushadhi and other outlets.

Conclusion:

Conclude with way forward.

Introduction:

The government is mulling over excluding medicines made from locally manufactured active pharmaceutical ingredient (API)—the key raw material for the production of a drug—from price control. The move is aimed at pushing manufacture of APIs in India to reduce import dependence. The move if implemented and to the desired effect, would be a boost for Indian pharma.

Body:

Issues facing the Pharma industry:

- **Overdependence:** Indian pharma industries import about **80% of Active Pharmaceutical Ingredients (API) from China**. The API forms the base of drugs. With trade-wars at global levels and wavering bilateral relations, there is a looming threat which can stall the Indian pharma industries. In FY19, Indian pharma companies **imported bulk drugs and intermediates** worth \$2.4 billion from China.



- **Compliance issues and good manufacturing practices:** Diversifying the global market has been a problem with countries China and USA imposing Sanitary and Phyto-Sanitary (SPS) barriers of WTO against generic drugs. The selective targeting by US Food and Drug Administration and Chinese Drug regulators are a problem still.
- **Drug Price Control Order:** The companies sight that the reforms of the Government for the essential medicines has caused them to lower the price of drugs. This has been done by the Government for the betterment of the public.
- **Stronger IP regulations:** IP regulation has always been a thorn in the skin for the companies, especially the foreign companies. The companies strongly feel that the rules have to be amended and the so-called victim of the lax regulations have been the foreign entrants.
- Because of fewer costs associated with generic medicines, multiple applications for generic drugs are often approved to market a single product; this creates competition in the marketplace globally, typically resulting in lower prices. Pharma sector in India is also facing steep headwinds on account of this.
- There is a **lack of proper assessment of the performance** of the pharmaceutical industry and its efficiency and productivity and due to this many plants have not survived.
- **Unregulated online pharmacies or e-pharmacies** emerging in India have been a major concern for authorized setups.
- There has been a significant drop in the flow of prescriptions as the Indian pharmaceutical industry has been witnessing a decline in the overall quality of its medical representatives (MRs). This is mainly on account of lack of training and support by the industry.
- In countries such as Russia, one requires to be a medical graduate to be a pharma sales representative. In the European Union, one needs to pass stringent examinations to become an MR. Once they qualify, they need to renew their certification every three years. But in India, even non-graduates are performing as MRs without proper guidance.

Measures needed:

- India's strong innovation capabilities aided partnerships would help in overcoming these problems.
- Developing our R&D sector to reduce dependency on foreign countries for raw materials
- The introduction of pharmaceutical product patents and the mandatory implementation of good manufacturing practices is the need of the hour.
- It is necessary for the Indian pharmaceutical industry to become globally competitive through world-class manufacturing capabilities, with improved quality and a higher efficiency of production, and there is a need to stress on the up-gradation of R&D capabilities.
- Training and development of human resources for the pharmaceutical industry and drug research and development should be done accordingly;
- There is also a need to promote **public-private partnership** for the development of the pharmaceuticals industry; promote environmentally sustainable development of the pharmaceutical industry; and enable the availability, accessibility, and affordability of drugs.



- Improvement in industrial practices to provide better training and support services for employees to perform their job functions.
- Using multilateral organisation like WTO against the illegal trade practices.
- Funding for the pharma companies might be a way to move forward.
- IPR Think Tank formed by the Government to draft stronger national IP policies.

Conclusion:

The affordability of healthcare is an issue of concern even in India, and people here would welcome some clarity on the principles of fair pricing vis-à-vis medical products. It is important that the accused companies are given a good hearing. The Government of India has taken up a number of initiatives to create an ecosystem that fosters manufacturing in pharma industries.

Is it imperative to focus on agricultural production in devising a long-term solution to the problem of unemployment and the present slowdown in economy? Critically Analyse. (250 words)

The hindu

Why this question:

The article discusses the importance of agricultural production in devising a long-term solution to the problem of unemployment and the present slowdown in economy.

Key demand of the question:

One must establish the significance of agricultural production in devising a long-term solution to address the issues of unemployment and economic slowdown currently being witnessed by the country.

Directive:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgment.

Structure of the answer:

Introduction:

In brief narrate the agrarian situation in the country.

Body:

In brief, write a note on the role and significance of agriculture in Indian economy. Analyze the performance of agriculture in the last few years. Then critically look into, how emphasis on agricultural production will address the present issues in economy- unemployment and the slowdown.

Conclusion:

Conclude with way forward.

Introduction:

Growth has slowed for the past few quarters, the past two-and-a-half years, if we go by annual growth rates. Globally, industrial growth driven by mindless consumption is the cause of climate change, now unmistakably upon us. According to NITI Aayog, the current economic slowdown is the worst economic slowdown that India has faced since independence. Moreover, the slowdown has been witnessed in consumption in the Indian economy. From many decades, consumption has been the major driver of growth in the Indian economy. Income stagnation has been the cause of consumption slowdown.

**Body:**

Yes, it is imperative to focus n agricultural production due to :

- Rural unemployment is on all-time high.
- Unstable agricultural production first lowers the demand for agricultural labour and, subsequently, its supply, showing up in greater unemployment.
- This affects the investment rate as when non-agricultural firms observe slow agricultural growth, they are likely to hold their investment plans.
- Also, low agricultural export growth, the dismal banking credit, suggest that poor agricultural performance is a significant explanation of slack domestic demand.
- Figures reported in the report of the last Periodic Labour Force Survey point to a dramatic rise in the unemployment rate since 2011-12, when the previous survey on unemployment was undertaken.
- Apart from the category of 'Urban Females', the most recent estimate of unemployment shows that it is the highest in the 45 years since 1972-73. But even for 'Urban Females', it is double what it was in 2011-12.
- For the largest cohort, namely 'Rural Males', in 2017-18, it is four times the average for the 40 years up to 2011-12.
- These figures should convince us of the existence of a grave situation, if not crisis, with respect to employment in the country.

Need for a long term solution:

- Any long-term solution to the problem of unemployment to which the slowing growth of the economy is related must start with agricultural production.
- It has long been recognised that there is a crop-yield cycle related to annual variations in rainfall but we are now witnessing a stagnation.
- We may be experiencing an ecological undertow, and it could defeat our best-laid plans for progress.
- Now, unlike in the case of a cycle, recovery cannot simply be assumed.
- We would need the expertise of agricultural scientists to confirm what exactly is responsible for this state but it would not be out of place to ask if there is not a role for ecological factors in causing agricultural stagnation.
- These factors encompass land degradation involving loss of soil moisture and nutrients, and the drop in the water table, leading to scarcity which raises the cost of cultivation.
- Almost all of this is directly man-made, related as it is to over-exploitation or abuse, as in the case of excessive fertilizer use, of the earth's resources.
- Then there the increasingly erratic rainfall, actually due to climate change entirely induced by human action.



- A deeper adaptation is required to deal with these factors. Intelligent governance, resource deployment and change in farmer behaviour would all need to combine for this.
- It is significant that the reality of an unstable agricultural sector rendering economy-wide growth fragile has not elicited an adequate economic policy response.
- Policy focus is disproportionately on the tax rate, the ease of doing business in the non-agricultural sector and a fussy adherence to a dubious fiscal-balance target.
- It is now time to draw in the public agricultural institutes and farmer bodies for their views on how to resuscitate the sector.

Conclusion:

To tackle the unemployment crisis, action will be needed on multiple fronts including investments in human capital, the revival of the productive sectors, and programmes to stimulate small entrepreneurship. The rural picture matters not only because the largest numbers are located there but also because of their low incomes. This means that the future growth of demand for much of industrial production is likely to come from there. The high unemployment rate for 'Rural Males' does suggest that we have zoomed in up to a reasonable degree of precision on the site of low demand. India does need some growth as income levels here are still very low. The problem of low incomes can, however, be tackled even with less growth so long as it is of the appropriate type.

With India facing an economic slowdown, it is a superlative time to instrument agricultural reforms for the restoration of the economy. Analyse. (250 words)

The hindu

Why this question:

One of the world's fastest-growing economies, India, is now facing sluggish growth, with the Reserve Bank of India sharply cutting GDP growth forecast to 6.1% for 2019-20, which is lowest in the last six years.

Key demand of the question:

One has to elaborate that the time is right to execute a slew of doable agricultural reforms as the role of agriculture in reversing the slowdown is immense in the light of its nearly 20% contribution to a \$5-trillion economy.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

In brief explain why there is slowdown in the economy.

Body:

Explain the significance of agriculture to the economy in general.

Whatever the reason for the slowdown, the opportunity to speed up must accommodate a diverse body of opinion and options for sustainable and inclusive growth.

The conventional approach of fiscal and monetary stimulus options to address the relics of a slow pace would only give immediate relief and not an enduring solution.

Hence key policy measures as they exist now must reach out to emancipate that which is dragging growth while stimulating key sectors.

The occasional dip in growth due to various reasons will slow the pace to achieving a \$5-trillion economy by 2024.

This is the right time to execute a slew of doable agricultural reforms as the role of agriculture in reversing the slowdown is immense in the light of its nearly 20% contribution to a \$5-trillion economy.



Therefore, a blend of efforts from a range of sectors, agriculture and allied sectors is warranted to enable overall growth.

Conclusion:

Conclude with way forward.

Introduction:

India which was hailed as the '**fastest growing economy**' is now facing sluggish growth, with the Reserve Bank of India sharply cutting GDP growth forecast to 6.1% for 2019-20, which is lowest in last six years; there has been a sharp decline in the performance of key sectors. The conventional approach of fiscal and monetary stimulus options to address the relics of a slow pace would only give immediate relief and not an enduring solution. Hence key policy measures as they exist now must reach out to emancipate that which is dragging growth while stimulating key sectors.

Body:

Current situation of Agricultural sector:

- Real agricultural and allied gross value added (GVA) grew by 2.9% during 2011-12 to 2017-18, while in the National Agricultural Policy (2000), it should have been around 4%, to attain an overall economic growth of 8%.
- A **highly skewed and unprecedented monsoon, erratic rainfall, and extreme natural events** are creating havoc as far as farms and farmers are concerned which in turn are likely to disrupt supply chains, fuel inflation and have a negative impact on consumption, all of which can further dampen the prospects of revival of the economy.
- The current growth rate in the farm sector is less than adequate to take on developmental challenges originating from the Sustainable Development Goals, mainly zero hunger, no poverty, life on land, and gender equality.

Potential of Agriculture sector to revive economy:

- The sector is a potential enabler and employer for more than 50% of the population.
- It also has the potential to revive "animal spirits" by ensuring farm viability: increasing the ratio of farm to non-farm income to 70:30 by 2022-23 from the present 60:40.
- According to the agriculture census 2015-16, the **real income of farmers doubled** in almost 20 years from 1993-94 to 2015-16.

Measures needed:

- The **Agricultural Developmental Council (ADC)** in line with the GST Council is a dire need to make agricultural reforms more expressive and representative.
- For better income distribution, there is also a need to **revisit regional crop planning and the agro-climatic zone model** at the highest possible level
- Promote occupations which are less influenced by the slowdown such as farming, handloom, handicrafts and others.
- There is urgent need to **increase the job-to-investment ratio** which is currently very low.



- Giving a policy nudge to **in-situ employment creation** is a must for a stable income and spending.
- There is a need to reconsider the few distorting reforms that are often stated to revive the short-term chaos in the long run.
- Encouraging public and private investments to develop infrastructure like cold chains;
- Special attention for north-eastern, eastern and rain-fed states for augmenting scope of access to institutional credit;
- Rationalisation and targeting of input subsidies towards small and marginal farmers.
- Reform in land leasing laws to promote land consolidation and contract farming.
- Accelerating the pace of public investment in agriculture and ensure greater efficiency in capital use.
- Loans available through KCC are very low, so the government and RBI should work together to increase the loan amount.
- PPPs could help spur the development of the food processing industry, one of the newest sectors in Indian agriculture.
- present agriculture growth is in declining phase, to revive the agriculture growth need patient capital (as financial returns to investment are unlikely to materialize in the initial years.) like rural infrastructure development fund (RIDF)

Conclusion:

Agriculture and its allied sectors are believed to be one of the most fertile grounds to help achieve the ambitious Sustainable Developmental Goals (SDGs). However, with the current pace of agriculture growth, India requires 'patient capital', as financial returns to investment are unlikely to materialise in the initial years. This is the right time to execute a slew of doable agricultural reforms as the role of agriculture in reversing the slowdown is immense in the light of its nearly 20% contribution to a \$5-trillion economy. Therefore, a blend of efforts from a range of sectors, agriculture and allied sectors is warranted to enable overall growth.

What are Green Skills? Discuss the Importance of Green Skill Development Programme that was launched recently. (250 words)

[Vikaspedia](#)

Why this question:

India would need around 10.4 crores of new workforces by the year 2022, in various sectors and hence skill development is essential to meet the demand. Thus with this aspect the question aims to examine the significance of Green Skill Development Programme.

Key demand of the question:

Explain what are green skills and their importance in today's times. Also throw light on the Importance of Green Skill Development Programme that was launched recently.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:



In brief define what green skills are.

Body:

Recently Decision has been taken by the Government of India, to expand the Green Skill Development Programme (GSDP) to an all-India level.

Discuss –

What are Green Skills? – Green skills are those skills needed to adapt processes, services and products to climate change and the environmental regulations and requirements related to it. They include the knowledge, abilities, values and attitudes needed to live in, develop and support a sustainable and resource-efficient society. These skills are required in areas such as such as Renewable energy, Wastewater treatment, Climate resilient cities, Green construction, Solid waste management etc.

Explain its significance.

List down the importance of Green Skill Development Programme along with recent developments.

Conclusion:

Conclude with way forward.

Introduction:

Green skills are those which contribute to preserving or restoring environmental quality for sustainable future and include jobs that protect ecosystems and biodiversity, reduce energy and minimize waste and pollution. Realizing the demand for green skilled youth, the Green Skill Development Programme (GSDP) has been conceptualised.

Body:

The Green Skill Development Programme (GSDP) of the Ministry of Environment, Forest and Climate Change (MoEF&CC) is an initiative for skill development in the environment and forest sector to **enable India's youth to get gainful employment and/or self-employment.**

Importance of Green skill Development programme:

- India being the second most populous country in the world is bestowed with a large working population. India has advantage of reaping this demographic dividend.
- Green skilling is crucial for making **a transition from energy and emissions – intensive economy to cleaner and greener production and service patterns.**
- **A Huge gap exists between the need (demand) and availability (supply) of skill sets**, both cognitive and practical, at various levels in the Environment, and Forest sectors in India. However, most of the vocational training programmes focus on mechanical/technical skills rather than 'soft' skills or 'green' skills.
- The Green Skill Development Programme (GSDP) aims to fill this gap. It enhances the employability of people in jobs that contribute to preserving or restoring the quality of the environment, while improving human well-being and social equity.
- GSDP will include **process-based green skills such as, monitoring and managing activities such as waste, energy efficiency, impact minimization and assessment**, etc.
- The programme endeavours to develop green skilled workers having technical knowledge and commitment to sustainable development.



- It will help in the **attainment of the Nationally Determined Contributions (NDCs), Sustainable Development Goals (SDGs), National Biodiversity Targets (NBTs), as well as Waste Management Rules (2016).**
- The number of people to be covered under GSDP will be 80,000 during 2018-19, 2.25 lakh during 2019-20 and about 5 lakh people by the year 2021.
- The skilling programmes cover diverse fields such as pollution monitoring (air/water/soil), Sewage Treatment Plant, Effluent Treatment Plants and Common Effluent Treating Plants (STP/ETP/CETP) operation, waste management, forest management, water budgeting, auditing, conservation of river dolphins, wildlife management, para taxonomy, including Peoples' Biodiversity Register (PBRs), mangroves conservation, bamboo management and livelihood generation.

Conclusion:

With the success of the pilot programme, the next step is to take the skilling programme to an all India level and for all the courses to commence in February 2018. For this, the following steps are required to be undertaken: Identification of New courses based on the demand, Identification of New Institutes with the necessary expertise, and Identification of Employment opportunities.

What is a randomised controlled trial in the context of research that won the Nobel Prize in Economics 2019? Why is it so popular? Explain. Also discuss few criticisms of randomised controlled trials. (250 words)

The hindu

Why this question:

The article provides an in-depth analysis of randomised controlled trials – the method that was used in the research of recently won Noble prize for economics 2019.

Key demand of the question:

One has to explain in detail the concept of randomised controlled trial, reasons for its popularity and criticism if any.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief discuss the origin of randomised controlled trial.

Body:

Explain that the use of randomized controlled trials as a research tool was largely limited to fields such as biomedical sciences where the effectiveness of various drugs was gauged using this technique. Mr. Banerjee, Ms. Duflo and Mr. Kremer, however, applied RCT to the field of economics beginning in the 1990s. Mr. Kremer first used the technique to study the impact that free meals and books had on learning in Kenyan schools. Mr. Banerjee and Ms. Duflo later conducted similar experiments in India and further popularized RCTs through their book Poor Economics, published in 2011.

Discuss the concept in detail, its popularity.

List down criticisms; take hints from the article.

**Conclusion:**

Conclude with way forward.

Introduction:

The new Economics Nobel laureates – Abhijit Banerjee, Esther Duflo and Michael Kremer – are considered to be instrumental in using **randomised controlled trials** to test the effectiveness of various policy interventions to alleviate poverty. **Randomised controlled trial** is an experiment that is designed to isolate the influence that a certain intervention or variable has on an outcome or event.

Body:

The Randomised Control Trial (RCT) which was inspired by the use of RCTs in medical science was used by the Nobel laureates to test the effect of small interventions on the individual behaviour. The **experiment-based approach** of the laureates involved **dividing an issue into smaller and more manageable questions**. They have shown that **smaller and more precise questions are often best answered through carefully designed experiments among the people** who are the most affected. In the mid-1990s, **Dr Kremer and his colleagues** demonstrated how powerful this approach can be when they used field experiments to test a range of interventions that could improve school results in Western Kenya.

RCTs have become popular due to:

- At any point in time, there are multiple factors that work in tandem to influence various social events.
- RCTs allow economists and other social science researchers to isolate the individual impact that a certain factor alone has on the overall event.
- For instance, to measure the impact that hiring more teachers can have on children's learning, researchers must control for the effect that other factors such as intelligence, nutrition, climate, economic and social status etc., which may also influence learning outcomes to various degrees, have on the final event.
- Randomised controlled trials promise to overcome this problem through the use of randomly picked samples.
- **Many development economists** believe that RCTs can help governments to find, in a thoroughly scientific way, the most potent policy measures that could help end poverty rapidly.

Criticisms of randomised controlled trials:

- As per economist Angus Deaton, who won the economics Nobel Prize in 2015, "Understanding and misunderstanding randomised control trials" that simply choosing samples for an RCT experiment in a random manner does not really make these samples identical in their many characteristics.
- While two randomly chosen samples might turn out to be similar in some cases, he argued, there are greater chances that most samples are not really similar to each other.
- Other economists argue that social science research, including research in the field of development economics, may be inherently unsuited for such controlled research since it may be humanly impossible to control for multiple factors that may influence social events.



Conclusion:

Governments across the world spend big money on social schemes without the vaguest of ideas on whether their objectives have been met. India has been among the biggest laboratories of these experiments with several experiments on diverse themes such as literacy, nutrition, health, micro-finance and so on. The **field-work based approach** that these economists have perfected has revolutionised the field of development economics and made it more relevant in policy making. The government would do well to borrow from the research of these laureates to understand the impact of its several schemes, and where necessary, tweak them to derive maximum benefit for the thousands of crores of rupees that it spends.

Case study: For example, to study whether providing a mobile vaccination van and/or a sack of grains would incentivise villagers to vaccinate their kids under an RCT, village households would be divided into four groups.

- *Group A would be provided with a mobile vaccination van facility.*
- *Group B would be given a sack of foodgrains.*
- *Group C would get both*
- *Group D would get neither*

Group D is called the “control” group while others are called “treatment” groups. Households would be chosen on a random basis to ensure there was no bias, and that any difference in vaccination levels was essentially because of the “intervention”.

Such an experiment would not only demonstrate whether a policy initiative works but would also provide a measure of the difference it brings about. The approach would also show what happens when more than one initiatives are combined. This would help policymakers to have the evidence before they choose a policy.

Putting more money in the hands of the poor, who have a high propensity to consume, should be the aim of our fiscal policy to revive India’s ailing economy and ensure inclusive growth. Comment.(250 words)

[Livemint](#)

Introduction:

India which was hailed as the ‘**fastest growing economy**’ is now facing sluggish growth, with the Reserve Bank of India sharply cutting GDP growth forecast to 6.1% for 2019-20, which is lowest in last six years; there has been a sharp decline in the performance of key sectors. The various inequalities that include, social exclusion, discrimination, restrictions on migration, constraints on human development, lack of access to finance and insurance, corruption – are sources of inequality and limit the prospect for economic advancement among certain segments of the population, thereby perpetuating poverty.

Body:

Reasons for decline in Economic growth in India:



- From a peak of 8.1% in the fourth quarter of 2017-18, growth in gross domestic product (GDP) has now decelerated to a six-year low of 5% in the fiscal first quarter, with a slowdown visible across all sectors.
- Particularly important in this context is the compression of government expenditure. Central government revenue grew only 6% last year, more than 11% short of the budget estimate.
- Accordingly, expenditure growth was compressed to 6.9% last year, down from more than 11% the year before.
- Weak revenue growth meant devolution to states also fell short, forcing them to cut expenditure.
- This compression of government spending at a time when all major components of aggregate demand were already slowing has been an important driver of the sharp decline in economic growth.

Government's approach to tackle and the shortcomings:

- Given the grim global economic environment, reliance will have to be placed on internal sources to generate demand.
- The measures the government has announced are largely in response to demands of specific interest groups such as foreign portfolio investors, real estate companies, automobile companies, etc.
- These have mostly been piecemeal supply-side interventions, which may help these specific interest groups but won't reverse the collapse in aggregate demand.
- The Reserve Bank of India (RBI) has repeatedly cut the repo rate to revive demand and has also taken other measures to ease the availability of credit. With limited traction for monetary policy, the burden of growth stimulation must fall mostly on fiscal policy.
- the unrealistic assumptions of the 2019-20 budget are quite worrying. It has been assumed that tax revenue and total revenue will grow by 25.3% and 25.6%, respectively, though they both grew by only 8.9% in 2018-19. The expenditure targets are equally unrealistic. Hence, there will be another large revenue shortfall and corresponding expenditure shock this year, further reducing growth.

Measures needed:

- The impact of an increase in government spending would be direct and fast, especially if it puts more money in the hands of poor consumers who have a high propensity to consume.
- That would have a **strong multiplier effect**, and this should be the guiding principle for an inclusive fiscal strategy to revive growth.
- According to the Periodic Labour Force Survey 2017-18, 45% of regular workers are paid less than the minimum wage. The Minimum wages code would **benefit about 50 crore workers**
- Fixing the GSTN on a war footing, paring down tax exemptions and rationalizing subsidies can free up fiscal space to the tune of 6-7% of GDP.



- Building on the **PM-Kisan programme**, by extending the ₹6,000 income support per farmer to all citizens, which would cost 1% of GDP. This income support could be increased to ₹12,000 per citizen per year, doubling the cost to 2% of GDP. This support could grow with the economy.
- Education, health and infrastructure are all underfunded. Additional funding of 1% of GDP could be provided to each of these.
- Lastly, the remaining fiscal space could be used to cut the fiscal deficit.

Conclusion:

India's socialistic measures to help the poor by spending on their socio-economic challenges like Education, health, livelihood can spur the spending capacities leading to revival of economic growth. This has been substantiated by recent Economic Nobel laureates' approach of work on combating poverty through Randomised Controlled Trials.

To be a \$5-trillion economy by 2025, India needs to build a cohesive national strategy around artificial intelligence (AI), do you agree? Justify your opinion with suitable illustrations. (250 words)

Indianexpress

Why this question:

The article explains that while it is clear that India is heading in a direction where both the private and public sectors are unified in their commitment to promote and upscale AI, most of the commitments have been made on paper, in budget speeches, proposals and heavily researched reports.

Key demand of the question:

One has to explain in what way to be a \$5-trillion economy by 2025, India needs to build a cohesive national strategy around artificial intelligence (AI).

Directive:

Justify – When you are asked to justify, you have to pass a sound judgement about the truth of the given statement in the question or the topic based on evidences. You have to appraise the worth of the statement in question using suitable case studies or/ and examples.

Structure of the answer:

Introduction:

Explain that while the government has been vocal about its intention to mainstream AI applications for social good, and ensure that AI research in India keeps pace with global developments, there is little evidence to show that even the basic building blocks to achieve this have been put in place.

Body:

Discuss first in detail that multiple calls taken by various governmental agencies have led to seemingly independent and often confusing strategies, resulting in conflict and a very real danger of ineffective execution.

Bring out and highlight various stands taken by different institutions around this idea.

Explain what can be done.

Conclusion:

Conclude that India's AI strategy narrative needs to change from being a reactionary step to "counter the charge" of countries like China, to a proactive one where policies and infrastructure made in the country serve as "a beacon of inspiration" to other countries that are further behind.

Introduction:

The National Strategy for Artificial Intelligence published by NITI Aayog narrates the different pain points and key challenges involved in implementing Artificial Intelligence in India. It has also tried to touch upon many sectors where AI can play a significant role in bringing India to the



forefront of AI revolution. To be a \$5-trillion economy by 2025, India needs to build a cohesive national strategy around artificial intelligence (AI).

Body:

A cohesive national strategy around AI will help boost economy:

- India's digital consumer base is the world's second-largest, as well as the second-fastest growing among 17 major economies, as per findings of the latest India Economic Survey.
- And this base is core to the creation of future economic value and societal empowerment as digital solutions backed by new-gen technologies such as artificial intelligence (AI), internet of things (IoT) and automation become ubiquitous.
- The nation's naturally tech-savvy demography – 1.2 billion mobile phone connections, 560 million internet subscriptions, and over 350 million smartphones – will serve as the fulcrum of an inclusive digital transformation.
- We're already seeing more and more deployment of digital tools in the priority sectors of healthcare, education, financial services, agriculture, and transportation.
- From emboldening India's IT-BPM industry to doubling farmers' income, a strong digital economy holds the key to delivering sustainable growth, propelled by transformational innovations.
- A robust digital economy will also help India be better prepared to tackle some of the opaque complexities of the global marketplace.

However, there are conflicting views on the proposal:

- The Niti Aayog's "National Strategy for AI" report allocates a budget of Rs 7,500 crore and recommends setting up **Centers for Research Excellence (COREs)** in conjunction with academic institutions.
- It also recommends setting up **International Centers for Transformational AI (ICTAIs)** in association with leading industry players. It falls short, however, of clearly recommending the governance framework under which this should happen.
- The DIPP is next, with a budget of Rs 1,200 crore towards setting up the **National AI Mission (N-AIM)**. The N-AIM is supposed to be the nodal agency for all "AI related activities" in India which will also set up their own "centers of excellence" to promote interdisciplinary research, and assess the performance of various AI-based products in India.
- The MEITY plans to allocate a Rs 400-crore budget for new technology initiatives as part of the Digital India Programme, including working with the Digital India Corporation to set up yet another apex body for AI called the National Center for Artificial Intelligence (NCAI).
- While details on this are sparse, it has recently emerged that the ministry is at loggerheads with the Niti Aayog in terms of who ought to ultimately spearhead this movement.
- While the Union finance ministry appears to have weighed in to resolve the tussle, the final policy call on who gets to lead the charge is shrouded in controversy and uncertainty.

Measures needed:



- The government must put in place proper checks and balances against AI's misuse through legally enforceable and long-term policy guidelines, and a regulatory framework.
- By making national data centres for sensitive human data with a robust policy on data collection, use, inference, privacy, release and security, AI-based tools can enhance the growth and access to technology related to patient data and prevent misuse of personal data by private individuals, government and corporations.
- The strategy should strive to leverage AI for economic growth, social development and inclusive
- To truly harness AI's transformative potential, India must address its lack of expertise in AI research and application.
- The government must address privacy and data security concerns on a war-footing.
- India must foster AI innovations and set up AI-friendly infrastructure to prepare India's job and skill markets for AI-based future.
- Banks may look at using AI for enhancing customer experience, security, and risk management.

Way forward:

- It is important that policy-makers and agencies converge their ideas around the groundwork that has been laid to streamline the effective creation and implementation of the country's national AI strategy.
- There is also a need for greater transparency in the timelines and roadmaps associated with these announcements, so that startups, non-governmental organisations and researchers can not only provide their input, but also understand when they can use some of this promised infrastructure if they are to compete at the international level.

Conclusion:

India's AI strategy narrative needs to change from being a reactionary step to "counter the charge" of countries like China, to a proactive one where policies and infrastructure made in the country serve as "a beacon of inspiration" to other countries that are further behind. As the DIPP policy recognises, "people, process and technology" are non-negotiable for AI to proliferate in India, but in the absence of the first two, much will still left to be achieved in the third.

Small businesses hold the greatest potential for job creation, thus a policy agenda to meet India's steep employment challenges must enable them on priority. Elucidate. (250 words)

[Livemint](#)

Why this question:

The article highlights as to how we must enable small businesses to grow since these hold the greatest potential for job creation.

Key demand of the question:

Explain the background of the current economic situation in the country and bring out the role played by small businesses; discuss the positives and negatives associated.

Directive:



Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In short set the context of the question.

Body:

Explain the following aspects in the answer body:

First discuss that India's economy has an excessive proportion of less productive, informal micro businesses.

Relate it to the employment factor in the country.

Then discuss the need for the government to recognise the impetus that small industries have to contribute to the overall growth.

Conclusion:

Conclude that there is an urgent need to recognise the significance of small businesses to the overall economic growth of the country.

Introduction:

India currently battles an economic slowdown and myriad other associated problems. The attention is thus bound to be deflected from the ever-present priority of job creation for the country's youth bulge. However, the recently released Annual Survey of Industries for 2017-18 revealed that Job creation in the factories sector has been steady, if not spectacular. The number of workers employed grew **4.8% in 2017-18**.

Body:

Potential of job creation:

- Micro, Small & Medium enterprises (MSME) termed as “**engine of growth**” for India, has played a prominent role in the development of the country in terms of creating employment opportunities.
- As per the survey, Total people engaged (including managers) rose 4.7%, the highest in four years.
- It currently employs 60 million people, creates 1.3 million jobs every year and produces more than 8000 quality products for the Indian and international markets.
- a growing body of research has upended this conventional wisdom and shown that the predominant source of job creation is firms that start small and formal, and eventually grow into medium-scale enterprises. They reveal an alternative path to generating productive jobs in India.
- Startups and young firms create more jobs regardless of their size, and educated entrepreneurs have a far higher probability of success.

The challenges and concerns associated with the growth of MSME sector:

- **Size of Sector:**
 - Micro businesses dominate most countries' economies, India's economy has an excessive proportion of less productive, informal micro businesses.



- employment in India is concentrated in these micro businesses, whereas in developed countries, it is concentrated in formal small and medium-sized firms.
- new and young firms create more jobs than older, established firms.
- with age, Indian firms typically stagnate or decline in employment.
- productive jobs are created by firms that start out as formal.
- **Access to Credit:**
 - According to Economic Survey (2017-18), MSME sector faces a major problem in terms of getting adequate credit for expansion of business activities.
 - The Survey had pointed out that the MSME received only 17.4 per cent of the total credit outstanding.
 - Most banks are reluctant to lend to MSMEs because from the perspective of bankers, inexperience of these enterprises, poor financials, lack of collaterals and infrastructure.
- **Poor Infrastructure:**
 - With poor infrastructure, MSMEs' production capacity is very low while production cost is very high.
- **Access to modern Technology:**
 - The lack of technological know-how and financial constraints limits the access to modern technology and consequently the technological adoption remains low.
- **Access to markets:**
 - MSMEs have poor access to markets. Their advertisement and sales promotion are comparatively weaker than that of the multinational companies and other big companies.
 - The ineffective advertisement and poor marketing channels makes it difficult for them to compete with large companies.
- **Legal hurdles:**
 - Getting statutory clearances related to power, environment, labour are major hurdles.
 - Laws related to the all aspects of manufacturing and service concern are very complex and compliance with these laws are difficult.
- **Lack of skilled manpower:**
 - The training and development programs in respect of MSME'S development has been. Thus, there has been a constant crunch of skilled manpower in MSMEs
 - India has a deficit of productive, job-creating entrepreneurs, and an excess of informal entrepreneurs focused on survival.
 - growing and efficient firms are founded and run by educated entrepreneurs

**Other issues:**

- Low ICT usage.
- Low market penetration.
- Quality assurance/certification.
- IPR related issues.
- Quality assurance/certification.
- Standardization of products and proper marketing channels to penetrate new markets.

Measures needed:

- The Government policies on micro, small and medium enterprises (MSMEs) must become more nuanced.
- Informal micro enterprises and single-person enterprises run by those lacking formal education should be termed “subsistence enterprises”.
- Educating the next generation is critical to breaking the iron grip of poverty and pulling single-person enterprises out of survival mode.
- Support to these subsistence enterprises should be provided under anti-poverty measures and not under an economic development programme
- To enhance the productivity of businesses and promote growth, the government should subsidise the provision of management support services—as industrial public goods—to young businesses.
- A nascent initiative in South Tamil Nadu shows that huge productivity gains are waiting to be unlocked in small businesses if entrepreneurs are made to understand the importance of some critical principles and concepts related to finance and human resources.
- Education plays a big role in the growth of startups and their contribution to employment generation, institutions of higher learning should prepare students to be entrepreneurs in the same way that they equip them with functional, marketable skills.
- The government should also periodically update the definitions of MSMEs to bring them closer to international standards. This will help ensure that businesses are not prematurely labelled as large and are not denied government support while still in need of it.

Conclusion:

Therefore, public policy to support entrepreneurship and MSMEs should target these entrepreneurs. However, any government support should be made contingent on the enterprise's progress in creating jobs and productive growth, thereby encouraging truly dynamic entrepreneurship.

As one of the fastest growing online retail markets among the economies of the world, the e-commerce sector must be assured of a fair policy framework to support India's emergence as a \$5 trillion economy by fiscal year 2024-25. Comment.(250 words)

[Livemint](#)

**Why this question:**

The article brings out the significant contributions that e-commerce in India is making and the steady trajectory of growth it has been achieving amidst economic slowdown facing the country.

Key demand of the question:

One has to elaborate on the fact that the potential of job creation in e-commerce is evident from the extent to which it has penetrated India's retail and consumption ecosystem. Explain in depth in what way e-commerce can be potentially used to create more jobs and augment the dream of \$5 trillion economy.

Directive:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:**Introduction:**

In brief highlight statistics related to e-commerce in India.

Body:

Explain that the e-commerce sector's resilience indicates an increasingly sharper understanding of what both India and Bharat want.

It also must be noted that amid a perceived nationwide slowdown in consumption, India's e-commerce sector has recorded its highest sales ever.

Discuss the benefits of e-commerce.

What are the possible challenges? And how they can be addressed.

Conclusion:

Conclude by reasserting the fact that the potential of e-commerce sector must be utilized to the fullest.

Introduction:

E-commerce or Electronic commerce is a **type of business model, or segment of a larger business model, that enables a firm or individual to conduct business over an electronic network, typically the internet.** It operates in all four of the major market segments in India – **business to business, business to consumer, consumer to consumer and consumer to business.** Keeping a tab on the growing e-Commerce in India, **Ministry of Consumer Affairs** has released the **draft guidelines on e-commerce for consumer protection.** It will act as the guiding principles for e-commerce business **for preventing fraud, unfair trade practices and protecting the legitimate rights and interests of consumers.**

Body:**Status of e-Commerce in India:**

- India's e-commerce sector has grown quickly despite an uncertain policy environment.
- The e-commerce sector in India is estimated to reach USD 230 billion by 2028 (accounting for 10% of India's retail).
- The e-commerce sector in India has been witnessing an explosive growth fuelled by the increase in the number of online users, growing penetration of smartphones and the rising popularity of social media platforms.
- The Indian e-commerce industry is expected to surpass the US to become the second largest e-commerce market in the world by 2034.
- Online shoppers in India are expected to reach 120 million in 2018 and eventually 220 million by 2025.



- Even in non-traditional items such as furniture and high-end fashion labels, growth has been phenomenal.

E-Commerce and its push for \$5 trillion economy:

- e-commerce is generating sufficient value for all buyer classes, enabling it to boost consumption in a way that is both exponential and inclusive.
- The potential of job creation in e-commerce is evident from the extent to which it has penetrated India's retail and consumption ecosystem.
- e-commerce is giving equal shelf space to domestic artisans and small- and medium-sized manufacturers, granting them access to local, national and even global markets.
- As the e-commerce sector grows and deepens, its engagement with both the "classes" and the "masses" of India, so to speak, its status as a multiplier of prosperity, can only grow.
- Today, placed at the intersection of economic growth, job creation and unprecedented market access for enterprises of all sizes, the e-commerce growth story epitomizes the inclusiveness of the Indian economy set in motion by government policies.
- As it sustains its growth trajectory, e-commerce can emerge as a leading generator of jobs in areas ranging from delivery, logistics and data-analytics to product and brand experience, design and inventory management, as well as support functions such as finance, payments, legal and human resources.
- Newer and more specialised competencies, including payment gateways, big data and mobile technology are being harnessed to give consumers a hassle-free purchase experience.

Current Policy Environment:

- It is still a work in progress when it comes to safeguarding customer interest.
- Consumers are still compelled to take wild chances in online transactions.
- There is little they can do if their calls go wrong, as returns and reimbursements are risky and cumbersome.
- There are no authentic ways to figure out if product reviews, ratings or even discounts are genuine.

Measures needed to strengthen e-Commerce:

- The sector comprises a growing number of players of various sizes.
- To remain competitive, they will all have to make regular investments that would place our workforce on a par with its global counterparts, while also serving to acquire and sustain a business advantage that enables the sector to surge ahead.
- The sector's multifaceted positives and its evolving nature have led the government to adopt a consultative approach. Such consultations must continue.
- While strategically designed and implemented regulations have a place in our economy, being overly critical of a marketplace that currently serves as a beacon of commercial



success may inadvertently stifle its growth and bring back the worst of the Licence Raj regime.

Conclusion:

Given all these, the Centre should take a call soon on the e-commerce policy, balancing the priorities of the stakeholders. The draft guidelines thus propose a series of consumer safeguards in India that forbid e-commerce companies from influencing pricing, adopting unfair promotion methods or misrepresenting the quality of goods and services.

Major crops cropping patterns in various parts of the country, different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers

Discuss the need of a strong agriculture/veterinary patent regime to augment India's agricultural research and development sector, also, analyse how it can prove to be a road map for agricultural technology transfer and commercialization? (250 words)

Epw

Why this question:

The article highlights the aspects of a clear road map for agricultural technology transfer and commercialization.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief narrate India's agricultural research and development sector scenario.

Body:

Explain that the management and transfer of agricultural technologies for commercialization purposes is considered to be a new concept in India. However, there is an upward surge in the technology protection, incubation and other commercialization activities in recent times. This can be attributed to the recent transformation of the agribusiness ecosystem in the country due to policy initiatives and more focused research in applied and frontier areas.

Discuss the various aspects, ways to augment agricultural systems, role of patents etc.

Conclusion:

Conclude that Appropriate policies should combine the concern with international norms with the specifics of India's economic and social needs to ensure the success of agricultural systems through the aid of technological advancements.

Introduction:

Technologies developed in research or academic institutions are typically transferred through an agreement in which the university or the research institution grants to a third party a licence to use its intellectual property in the defined technology, sometimes for a particular field of use and/or region of the world.

There is an upward surge in the technology protection, incubation and other commercialisation activities in recent times. This can be attributed to the recent transformation of the agribusiness ecosystem in the country due to policy initiatives and more focused research in applied and frontier areas.

**Body:****Need for a strong agriculture/veterinary patent regime:**

- The management and transfer of agricultural technologies for commercialisation purposes is considered to be a new concept in India.
- The technology transfer process promotes commercialisation, reach of better products to the market and job generation.
- The expenses incurred towards intellectual property protection and its maintenance can be justified in view of introduction of better products, increased competition in the market, enhanced customer satisfaction, and more revenue and tax generation.
- A stronger intellectual property enforcement and providing more timely resolution of infringement complaints can help combat intellectual property theft, which is not uncommon in India.
- They can forge strategic alliances with global business houses and their counterparts in foreign universities.
- In spite of the many agencies, schemes and government departments in the country that act as support mechanisms for intellectual property protection and subsequent commercialisation, the benefits have not been reaching to needy entrepreneurs, especially in the case of micro, small and medium scale agribusinesses.

Strong patent system can be a roadmap

- **Promotes Agricultural extension system:**
 - Public extension played a major role in ushering in the green revolution in Indian agriculture.
 - Though agriculture development in India is basically a state subject and the agricultural sector plays a crucial role from the perspective of ensuring food and livelihood security of its large population.
 - The central government plays a major role in formulating policies that has direct bearing on the growth of the agricultural sector.
- **Encourage public–public and public–private partnerships for intellectual property management:**
 - To increase industrial competitiveness in India, possibilities of new partnerships should be explored among the research producers, technology providers, users (including start-ups), and funders.
- **Concerted approach for promoting business incubation and start-ups:**
 - By default, agricultural technologies are low-cost technologies, and entrepreneurs consider them less enterprising because of the lower purchasing power of the target market.



- Therefore, ICAR and SAUs should initiate facilities for incubation of new business ideas based on innovative agricultural technologies by providing cheap space, facilities and required information and research inputs.
- **Bringing an act in Parliament like Bayh-Dole Act in the US:**
 - The US Bayh-Dole Act of 1980 allows universities and other non-profit institutions to have ownership rights to discoveries resulting from federally-funded research, provided certain obligations are met.
 - Crafting Indian legislation analogous to the Bayh-Dole Act in the US will ensure more legal clarity and support, lower transaction costs, and facilitate more efficient channels for technology transfer.
- **Changes in existing research ecosystem:**
 - ICAR's and SAUs's policies have to be modified in such a way that will encourage public institutions to share patent revenues with individual inventors or researchers.
 - It should also encourage universities and research institutes to patent all patentable discoveries and make it mandatory for all public research institutions to set aside a portion of royalty revenues to maintain internal systems for updating innovation, filing new patent applications, litigating, licensing, and building intellectual property awareness and competence.
- **Catalyse change in legal system and industrial culture:**
 - Apart from strengthening the institutional innovations and delivery mechanism, the NARS can also play a vital role in strengthening intellectual property laws and regulations in India with respect to agriculture, plant variety, geographical indicators, biodiversity and traditional knowledge.
 - It can also moot new guidelines for IPR policies within and outside NARS for issues related to agriculture, food and water.

Way forward:

- More concerted approaches of state and private players through effective PPPs are required to revitalise the Indian agricultural scenario to a more profit-oriented, technology savvy and productive one.
- Innovative institutional mechanisms should be designed for promoting intellectual property protection and technology commercialisation among researchers and academia.
- Legal and other supportive framework should also be strengthened to support the ever-changing intellectual property regime.
- The role of a strong intellectual property education among agricultural, business and law schools is also important in the present-day scenario.
- More open and pragmatic approaches would aid in developing a strong intellectual property platform for Indian agricultural research system.



- Forming protocols and guidelines for operating patents derived through public research funds coupled with appropriate innovations in institutional governance will enhance the prospects for technology transfer from laboratories to commercial markets.
- Appropriate policies should combine the concern with international norms with the specifics of India's economic and social needs.

Issues related to direct and indirect farm subsidies and minimum support prices; Public Distribution System- objectives, functioning, limitations, revamping; issues of buffer stocks and food security; Technology missions; economics of animal-rearing.

A sustainable solution for price stabilisation is the need of the hour than merely relying on ad-hoc measures. Discuss in the context of Operation Green-TOP.(250 words)

Indianexpress

Why this question:

Tomatoes-onions-potatoes (TOP) are the three basic vegetables that face extreme price volatility and the government often finds itself on the edge in fulfilling its dual objectives of ensuring remunerative prices for farmers and affordable prices for consumers. Thus necessitating us to examine the relevance of a sustainable price stabilization scheme.

Key demand of the question:

One has to explain the challenges the operation Green has come across in dealing with the issue of price stability. Explain the challenges and suggest solutions.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In short explain the TOP Scheme.

Body:

First discuss the key features of the current program of the government of India that seeks to address price volatility issue in agriculture system of the country.

Explain what are the possible long term solutions that can be taken forward.

Suggest sustainable solution for price stabilisation.

Conclusion:

Conclude with way ahead.

Introduction:

Operation Greens seeks to stabilize the supply of Tomato, Onion and Potato (TOP) crops and to ensure availability of TOP crops throughout the country round the year without price volatility. In the budget speech of 2018-19, a new Scheme "Operation Greens" was announced on the line of "Operation Flood", with an outlay of Rs.500 crore to promote Farmer Producers Organizations, agri-logistics, processing facilities and professional management.

Body:

Operation Green objectives:

- Price stabilisation for producers and consumers by proper production planning in TOP clusters.



- Reduction in post-harvest losses by creation of farm gate infrastructure, development of suitable agro-logistics, and creation of appropriate storage capacity linking consumption centres.
- Enhance value realisation of TOP farmers by targeted interventions to strengthen TOP production clusters and their FPOs.
- Increase in food processing capacities and value addition in TOP value chain.
- Set up of market intelligence network to collect and collate real time data on demand and supply and price of TOP crops.

Need for price stabilization of TOP crops:

- The scheme is launched on the lines of Operation Flood and seeks to replicate the success of milk in fruits and vegetables.
- Idea behind Operation Greens is to double the income of farmers by the end of 2022.
- The problem with vegetable commodities is that when their production increases sharply, their prices collapse because there is not enough modern storage capacity.
- The links between processing and organized retailing are very weak and small in India which often result in farmer receiving less than 1/4th of what consumers pay for their produce in major cities.
- Operation Greens will focus on these problems for basic ingredients and not on additional commodities in agriculture.

Challenges in implementation of Operation Green:

- There are so many varieties of TOP vegetables, grown in different climatic conditions and in different seasons, making marketing intervention (processing and storage) all the more complex, unlike in milk that is a relatively homogenous product produced round the year.
- Viable technology options for long-term storage, transport, and processing are still being developed.
- Energy intensity of available technologies, especially with rising fuel prices, poses additional challenge.
- Organized market at present is very small in relation to total production. The market has to be developed through a viable business model which is both time and cost consuming.
- The scheme has no provision for institutional setup in implementing the scheme like the National Dairy Development Board (NDDB) in Operation Flood.

Measures needed:

- There is a need to link major consumption centre to major production centre with a minimal number of intermediaries.
- Increase processing capacities for TOP. Linking the processing industry with organized retailing. On an average, about one-fourth of the produce must be processed. Budget announcement of increasing the allocation for the food processing industry by 100% is a welcome step in this regard.



- By developing forward and backward linkages, the government can ease large price fluctuations, raise farmers' share in the price paid by the consumer and at the same time, ensure lower prices for the consumers — a win-win situation for all.

Food processing and related industries in India- scope and significance, location, upstream and downstream requirements, supply chain management.

The recently released 20th Livestock Census report census shows that the Centre's drive to increase indigenous breeds of cattle seems to have had little impact among cattle kept for dairy purposes, in the backdrop of it analyse the success of such missions and suggest ways for improvement.(250 words)

The hindubusinessline

Why this question:

Department of Animal Husbandry & Dairying, Ministry of Fisheries, Animal Husbandry and Dairying have released the 20th Livestock Census report. The release contains some key results reflecting the aggregate counts of various species as well as its comparison with previous census.

Key demand of the question:

Explain in detail the findings of the report and evaluate the efforts of centre in this direction, present your opinion as to how far the government has been successful in achieving its defined targets.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

In short highlight the importance of such a census.

Body:

The Livestock Census has been conducted in the country periodically since 1919-20.

Then discuss the findings of the report. Thereafter explain the efforts of Centre to increase indigenous breeds of cattle that seem to have had little impact among cows kept for dairy purposes. There are 4.85 crore desi (native) milch cows in the country, less than 1% increase than in the last census in 2012.

Discuss Rashtriya Gokul Mission; its objectives.

Conclusion:

Conclude with what needs to be done.


Introduction:

India's livestock sector is one of the largest in the world. About 20.5 million people depend upon livestock for their livelihood. Livestock contributed 16% to the income of small farm households as against an average of 14% for all rural households. Livestock provides livelihood to two-third of rural community. It also provides employment to about 8.8 % of the population in India. India has vast livestock resources. Livestock sector contributes 4.11% GDP and 25.6% of total Agriculture GDP.

Body:



| Livestock Survey, 2019 (In millions) | | | |
|---|--------------------|--------------------|---------------------|
| Animals | 2019 Survey | 2012 Survey | % difference |
| Cattle | 192.49 | 190.90 | 0.83 |
| Buffaloes | 109.85 | 108.70 | 1.00 |
| Goats | 148.88 | 135.17 | 10.10 |
| Sheep | 74.26 | 65.06 | 14.10 |
| Pigs | 9.06 | 10.29 | -12.03 |
| Poultry | 851.81 | 729.2 | 16.80 |
| Total | 535.78 | 512.06 | 4.60 |



Trends in livestock population: (Source: 20th Livestock Census)

- Total Livestock population is 535.78 million- an increase of 4.6% over Livestock Census-2012.
- Total Bovine population (Cattle, Buffalo, Mithun and Yak)-79 Million in 2019- an increase of about 1% over the previous census.
- A **decline of 6 % in the total Indigenous/ Non-descript cattle** population over the previous census.
- The population of cows in the country has risen by 18 per cent in the last seven years, while that of oxen dipped by 30 per cent, according to the latest census of livestock.
- there was a spectacular 16.8 per cent increase in the poultry population in the country to 851.81 million, mainly on account of a 46 per cent rise in backyard poultry birds, whose numbers have gone up to 317 million.
- The number of female cattle is 145.12 million, which is 18 per cent over the 122.98 million in 2012. The number of male cattle, on the other hand, dropped to 47.4 million as against 67.92 million in 2012.
- While cattle accounted for 35.94 per cent of total livestock in the country, goats accounted for 27.80 per cent, buffaloes: 20.45 per cent, sheep: 13.87 per cent and pigs: 1.69 per cent.

Challenges faced by Livestock sector in India:

- Livestock sector did not receive the policy and financial attention it deserved. The sector received only about 12% of the total public expenditure on agriculture and allied sectors, which is disproportionately lesser than its contribution to agricultural GDP.
- The sector has been neglected by the financial institutions.
 - The share of livestock in the total agricultural credit has hardly ever exceeded 4% in the total (short-term, medium-term and long-term). The institutional mechanisms to protect animals against risk are not strong enough.



- **Insurance:**
 - Currently, only 6% of the animal heads (excluding poultry) are provided insurance cover. Livestock extension has remained grossly neglected in the past.
 - Only about 5% of the farm households in India access information on livestock technology. These indicate an apathetic outreach of the financial and information delivery systems.
- **Lack of access to markets** may act as a disincentive to farmers to adopt improved technologies and quality inputs.
- **Productivity:**
 - Improving productivity of farm animals is one of the major challenges. The average annual milk yield of Indian cattle is 1172 kg which is only about 50% of the global average.
- **Diseases:**
 - The Frequent outbreaks of diseases like Food and Mouth Diseases, Black Quarter infection, Influenza etc. continue to affect Livestock health and lower the productivity.
- **Environment:**
 - India's huge population of ruminants contributes to greenhouse gases emission adding to global warming. Reducing greenhouse gases through mitigation and adaptation strategies will be a major challenge.
- **Crossbreeding of indigenous species** with exotic stocks to enhance genetic potential of different species has been successful only to a limited extent.
- **Limited Artificial Insemination services** owing to a deficiency in quality germplasm, infrastructure and technical manpower coupled with poor conception rate following artificial insemination have been the major impediments.
- Livestock derives a major part of their energy requirement from agricultural by-products and residues. Hardly 5% of the cropped area is utilized to grow fodder. India is deficit in dry fodder by 11%, green fodder by 35% and concentrates feed by 28%. The common grazing lands too have been deteriorating quantitatively and qualitatively.
- Except for poultry products and to some extent for milk, markets for livestock and livestock products are underdeveloped, irregular, uncertain and lack transparency. Further, these are often dominated by informal market intermediaries who exploit the producers.
- Likewise, **slaughtering facilities are too inadequate**. About half of the total meat production comes from un-registered, make-shift slaughterhouses. Marketing and transaction costs of livestock products are high taking 15-20% of the sale price.

Measures needed:

- A national breeding policy is needed to upgrade the best performing indigenous breeds.



- Buffalo breeding ought to be given more attention, while poultry breeding should be focused on conservation.
- State governments should be encouraged to participate in national breeding policy implementation. Geographical information system-based analysis must be utilised to map production systems.
- Animal health care should become a priority, with greater investment in preventive health care.
- Private investment must also be encouraged. The government needs to create better incentive structures for investment in livestock.
- State governments should sponsor research and assessment of the market, along with highlighting investment potential.

Conclusion:

With increasing population, persistent rise in food inflation, unfortunate rise in farmer's suicide and majority of the Indian population having agriculture as the primary occupation, the practice of animal husbandry is no more a choice, but a need in contemporary scenario. Its successful, sustainable and skilful implementation will go a long way in ameliorating the socio-economic condition of lower strata of our society. Linking the animal husbandry with food processing industry, agriculture, researches & patents has all the possible potential to make India a nutritional power house of the world. Animal husbandry is the imperative hope, definite desire and urgent panacea for India as well as the world.

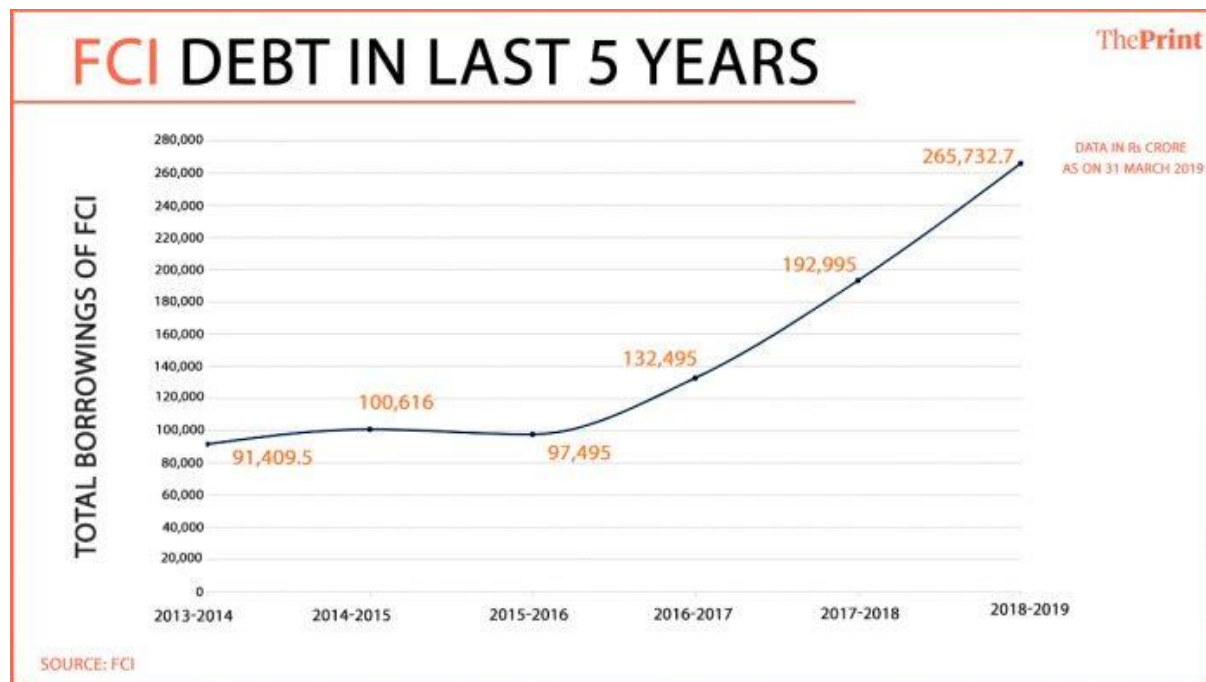
Food Corporation of India's rising debt stock is an alarming concern; discuss in detail the causative factors of the same while suggesting suitable measures to address the issues. (250 words)

Reference**Introduction:**

Food Corporation of India (FCI) was formed in 1960's and was part of larger plan directed toward food security and self-sufficiency. Other major institution was CACP. These two institutions along with MSP regime and Public distribution system were expected to work in tandem. FCI's responsibility was to procure, Store and discharge grains as per policy of the government. Over the time, as in other cases these institutions too failed to adapt to changing circumstances such as changing demands of economy. As a result, FCI now reels under chronic inefficiency through huge wastages, and storage cost of grains keeps on cumulating.

Body:

In the last five years, Food Corporation of India has seen its debt level magnifying from ₹91,409 crores to ₹2.65 lakh crore in March 2019 — an increase of over 190 per cent.



Causative factors for the same:

- FCI, responsible for overseeing the National Food Security Act, does not have any stream of income of its own.
- The debt levels went starkly up in 2016-17, because the government decided to start giving credit to the FCI from the National Small Savings Fund (NSSF) to fuse the gap between what the government should have provided for in the fiscal budget and what it could actually disburse due to its budgetary constraints.
- FCI is completely dependent for revenue on the Centre. The Centre is responsible to fix the minimum support price for buying the foodgrains from the farmers, as well as the issue price which is the price at which they are supplied to the states.
- This difference, along with the cost of distribution, are paid by the government to FCI in the form of food subsidy.
- The last few years have seen the government increasingly budget a reduced amount than what is required as food subsidy. To recompense for the shortfall, the FCI has been borrowing from the NSSF every year.
- The passing of the National Food Security Act, 2013, augmented the number of beneficiaries while dipping the sale price of rice and wheat.
- At the same time, procurement prices have been rising heavily with higher minimum support prices and rising procurement by the FCI.
- The FCI buys high and sells low, managing on subsidies paid by the government. India's food subsidy bill has risen rapidly, doubling in six years (Rs 1.7 lakh crore in financial year 2018-19, or 0.9 per cent of GDP).



The government had set up a **six-member committee under Shanta Kumar** to suggest restructuring or unbundling of FCI to improve its financial management and operational efficiency in procurement, storage and distribution of food grains.

Important recommendations made:

- Reduce the number of beneficiaries under the Food Security Act—from the current 67 per cent to 40 per cent.
- Allow private players to procure and store food grains.
- Stop bonuses on minimum support price (MSP) paid by states to farmers, and adopt cash transfer system so that MSP and food subsidy amounts can be directly transferred to the accounts of farmers and food security beneficiaries.
- FCI should involve itself in full-fledged grains procurement only in those states which are poor in procurement. In the case of those states which are performing well, like Haryana, Punjab, Andhra Pradesh, Chhattisgarh, Madhya Pradesh and Odisha, the states should do the procurement.
- Abolishing levy rice: Under levy rice policy, government buys certain percentage of rice (varies from 25 to 75 per cent in states) from the mills compulsorily, which is called levy rice. Mills are allowed to sell only the remainder in the open market.
- Deregulate fertiliser sector and provide cash fertiliser subsidy of Rs 7,000 per hectare to farmers.
- Outsource of stocking of grains: The committee calls for setting up of negotiable warehouse receipt (NWR) system. In the new system, farmers can deposit their produce in these registered warehouses and get 80 per cent of the advance from bank against their produce on the basis of MSP.
- Clear and transparent liquidation policy for buffer stock: FCI should be given greater flexibility in doing business; it should offload surplus stock in open market or export, as per need.

Government has taken up few of the reforms as follows:

- **Aadhaar Linked and digitized ration cards:** This allows online entry and verification of beneficiary data. It also enables online tracking of monthly entitlements and off-take of foodgrains by beneficiaries.
- **Computerized Fair Price Shops:** FPS automated by installing 'Point of Sale' device to swap the ration card. It authenticates the beneficiaries and records the quantity of subsidized grains given to a family.
- **Direct Benefit Transfer:** Under the Direct Benefit Transfer scheme, cash is transferred to the beneficiaries' account in lieu of foodgrains subsidy component. They will be free to buy food grains from anywhere in the market. For taking up this model, pre-requisites for the States/UTs would be to complete digitization of beneficiary data and seed Aadhaar and bank account details of beneficiaries. It is estimated that cash transfers alone could save the exchequer Rs. 30,000 crores every year.
- **Use of GPS technology:** Use of Global Positioning System (GPS) technology to track the movement of trucks carrying food grains from state depots to FPS which can help to prevent diversion.



- **SMS-based monitoring:** Allows monitoring by citizens so they can register their mobile numbers and send/receive SMS alerts during dispatch and arrival of TPDS commodities
- **Use of web-based citizens' portal:** Public Grievance Redressal Machineries, such as a toll-free number for call centres to register complaints or suggestions.

Government has come up with a **roadmap** with the following highlights:

- Primacy will be given to ensuring that the functioning of FCI is streamlined and fast paced as per recommendations of the **Shanta Kumar Committee**.
- 100 lakh ton silo storage capacity will be created in the country. For this, RITES has been assigned the task of changing the silo model and they will give their recommendations in 90 days to FCI.
- At present, there are 3 types of labourers in FCI namely Departmental, Daily Payment System (DPS) and No work no pay workers along with contractual labour. Government of India is deliberating to finish the 3 different arrangements and bring all workers of FCI under a single, uniform system which will bring stability of tenure and secured wages for all.
- To improve the usage of Information Technology in FCI, a Human Resource Management System (HRMS) will be implemented, the work for which will begin in August, 2019 and will be completed by August 2020. This move will benefit 22,000 employees in 196 offices of FCI.

Conclusion:

The Committee recommendations however was criticized due to suggestions like limiting NFSA, cash subsidy, privatization of FCI despite suggesting useful reforms to reform FCI, PDS. A closer scrutiny in the recommendation is needed today in times of agricultural distress & drought prone years.

Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

“Prevention is better than cure”. Appreciate the statement in the context of fighting disasters. Also, discuss the role that the Coalition for Disaster Resilient Infrastructure can play in addressing this aspect.(250 words)

[Indianexpress](#)

Introduction:

The **Coalition for Disaster Resilient Infrastructure (CDRI)**, as proposed by Indian Prime Minister, will act as a **convening body that will pool best practices and resources from around the world for reshaping construction, transportation, energy, telecommunication and water, so that building in these core infrastructure sectors factors in natural catastrophes.**

Body:

Need for CDRI:

- According to Sendai framework, every \$1 spent in disaster risk reduction leads to gain of \$7. But developing countries face the dilemma of balancing economic investment for development vs disaster resilient infrastructure.



- CDRI could fill this gap of funds and technology and help developing countries to build disaster-resilient Infrastructure.
- Suppose a disaster strikes a country, the affected nation could approach CDRI for technical and financial help, thus shielding it from excessive damage and devastation.
- **Post-calamity resuscitation and reconstruction** to strengthen local infrastructure and soften the blow of the next disaster, is a farsighted approach.
- It can only work if there is domestic political will, which is reinforced at the multilateral level through CDRI.
- CDRI is an attempt to bring countries together to share and learn from the experiences of one another to protect their key infrastructure — highways, railways, power stations, communication lines, water channels, even housing — against disasters.

Role of CDRI:

- To make entire networks of modern infrastructure resilient is the main thought behind the Indian initiative of CDRI.
- The platform is not meant to plan or execute infrastructure projects. Nor is it an agency that will finance infrastructure projects in member countries. Instead, CDRI will seek to identify and promote best practices, provide access to capacity building, and work towards standardisation of designs, processes and regulations relating to infrastructure creation and management.
- It would also attempt to identify and estimate the risks to, and from, large infrastructure in the event of different kinds of disasters in member countries.
- CDRI hopes to have as its members not just countries, but organisations like UN bodies, financial institutions, and other groups working on disaster management.
- It seeks to help member countries integrate disaster management policies in all their activities, set up institutions and regulatory provisions to ensure creation of resilient infrastructure, and identify and use affordable finance and technology.

Significance of CDRI:

- CDRI will benefit all sections of society.
- Economically weaker sections of society, women and children, are the most vulnerable to the impacts of disasters and hence, will be benefitted from the improvement of knowledge and practice in creating disaster resilient infrastructure.
- It will also benefit all areas with high disaster risk.
- In India, the north-eastern and Himalayan regions are prone to earthquakes, coastal areas to cyclones and tsunamis and central peninsular region to droughts.
- The CDRI secretariat too would be based in New Delhi. While it is not envisioned to take the shape of a treaty-based organisation, CDRI can be seen as complementing International Solar Alliance's efforts.



- ISA is about climate change mitigation — deployment of more solar energy would bring down the reliance on fossil fuels, thereby reducing greenhouse gas emissions. CDRI, on the other hand, is about adapting to climate change, a need that is inevitable.

Case Studies:

- Japan is prone to recurrent killer earthquakes, tsunamis and typhoons, but it has overcome these liabilities through improved building rules, stricter zoning laws and regulations since the 1980s, making it the world's safest and most disaster-resilient country.
- In Latin America, Chile has similarly learnt lessons from past catastrophes and drastically cut down casualties and losses from disasters through well-regulated building standards.

Conclusion:

Each time a natural disaster occurs anywhere in the world, countries try to provide immediate relief, but there is no focus on building disaster-resilient Infrastructure. CDRI would help fill this gap and India can play a crucial role in setting a global example. With ISA and CDRI, India is seeking to obtain a leadership role, globally, in matters related to climate change.

Discuss the Renewable energy generation capacity of India. What would be a cost-effective way to enhance the renewable energy generation capacity of India? Elaborate. (250 words)

The hindu

Why this question:

The article throws light upon the methods of enhancing cost effective renewable energy generation to augment the capacity of Indian renewable energy sector.

Key demand of the question:

One has to briefly present the Indian renewable energy scenario and explain some of the key cost-effective ways to enhance the renewable energy generation capacity of India.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Start by stating facts – India aims to have a renewables capacity of 175 GW by 2022 and 500 GW by 2030. The editorial analyses how India can achieve these targets in a cost-effective manner.

Body:

First explain Renewable energy generation capacity of India with relevant facts and details such as – currently installed capacity of 358 GW is about four times of what it was in 1997-98, which shows a doubling of capacity in each of the past two decades — or about 75 MW per day. By India's historical standards, these are astonishing numbers.

Then move onto discuss what the concerns are therein.

Explain What would be a cost-effective way to enhance the renewable energy generation capacity of India?

Conclusion:

Conclude with way ahead.

Introduction:

India has been aggressively expanding its power generation capacity. **Today's installed capacity of 358 GW** is about four times of what it was in 1997-98, which shows a **doubling of capacity in each of**



the past two decades — or about 75 MW per day. The **private sector accounts for almost half the installed generation capacity**. For the last three years, growth in generation from renewables has been close to 25%. India aims to have a renewables capacity of 175 GW by 2022 and 500 GW by 2030. **Solar and wind power plants** would account for much of the targeted capacity from renewables.

Body:

Powering India
The major growth drivers have been renewable energy sources such as solar and wind power, and private sector investment.




Table 1: Power plants: average capacity and average cost

| Plant Type | Average capacity (MW) | Average Cost / MW (₹ crore) |
|------------|-----------------------|-----------------------------|
| Thermal | 741 | 7.50 |
| Solar | 39 | 9.38 |
| Wind | 44 | 7.06 |
| Hydel | 112 | 12.01 |

Table 2: Comparison of public and private capacity costs (1997 - 2017)

| Plant Type | Average cost (₹ crore/ MW) | | Average Capacity (MW) | |
|------------|----------------------------|---------|-----------------------|---------|
| | Public | Private | Public | Private |
| Thermal | 7.9 | 6.8 | 721 | 748 |
| Solar | 8.1 | 11.4 | 82 | 37 |
| Wind | 7.7 | 6.8 | 36 | 46 |
| Hydel | 12.2 | 8.0 | 223 | 29 |

Table 3: Reducing costs of power capacity (1997 - 2017)

| Plant Type | Average cost / MW (₹ crore) | | Average plant capacity | | Percentage fall in costs | Percentage change in capacity |
|------------|-----------------------------|------------|------------------------|------------|--------------------------|-------------------------------|
| | Before 2013 | After 2013 | Before 2013 | After 2013 | | |
| Thermal | 8.3 | 6.6 | 561.0 | 676.0 | -21% | 20% |
| Solar | 11.3 | 8.4 | 30.0 | 51.0 | -25% | 70% |
| Wind | 7.4 | 6.6 | 42.0 | 44.0 | -11% | 5% |
| Hydel | 14.5 | 7.7 | 141.0 | 279.0 | -47% | 98% |

(Note: All costs are calculated for 2017 values)

Cost-effective way to enhance the renewable energy capacity:

- **Increasing accessibility to clean energy:**
 - India has already committed to bring electricity to every household by 2022. An even more ambitious goal would be to provide electricity to all households on 24x7 basis.
 - To bring clean fuel in rural areas the Pradhan Mantri Ujjawala Yojana, should be complemented by: Setting up of biomass pelletising units; and distribution of 'efficient biomass chullahs'.
 - On the agricultural front, solar irrigation pump distribution target must be stepped up and financed through credit support from NABARD and government subsidy.
 - The potential non-conventional energy sources must be explored and researched to make them technologically economical and accessible, like geothermal energy, tidal energy etc.
- **Enhancing efficiency:**
 - The National Mission for Enhanced Energy Efficiency (NMEEE) should conduct a thorough cost-benefit analysis of the available energy-efficient technologies and products across all sectors, especially agriculture, housing and transportation.



- At the institutional level, the national and state designated agencies working in the area of energy efficiency should be strengthened.
- To enhance vehicle fuel efficiency gains, the auto fuel quality should be upgraded to BS VI norms for nation-wide launch in 2020.
- **Policy changes:**
 - Around three-quarters of our power comes from coal powered plants. It is important that India increases its domestic coal to reduce its dependence on imports.
 - There is need to fast track the regulatory clearances, improve labour productivity, increase coal production and enhance efficiency of distribution.
 - **Hydrocarbon Exploration and Licensing Policy (HELP)** intends to minimize government's discretion in decision making, reduce disputes, reduce administrative delays and introduce concept of revenue sharing, freedom of marketing to stimulate growth in the oil and gas sector in India.
 - **The tax structure** should be rationalized in import and sale of energy on thermal value basis with a view to enhance the competitiveness of the economy.
 - **The India energy security scenarios, 2047 (IESS)** has been developed as an energy scenario building tool. The guiding ambition of this is to develop energy pathways leading up to the year 2047, comprising of likely energy demand and supply scenarios.
 - NITI Aayog launched the India Energy Security Scenarios 2047 calculator (IESS 2047), as an open source web based tool.
 - The tool aims to explore a range of potential future energy scenarios for India, for diverse energy demand and supply sectors leading up to 2047.
- **Infrastructure:**
 - Refining and distribution of oil and gas needs augmentation. Thus, India should sustain its export capacity of refined products by setting up new refineries.
 - At present, 31 companies are developing City Gas Distribution (CGD) networks in 21 states for transportation or distribution of natural gas to consumers in domestic, commercial or industrial and transport sectors through a network of pipelines.
 - For the hydro projects, the government will need to make efforts to expedite progress on capacity under construction through satisfactory Rehabilitation & Resettlement implementation.
 - India has also built its **strategic petroleum reserves** in order to meet any supply shocks due to any external exigencies like wars, natural disasters etc. Indian Strategic Petroleum Reserves Ltd, a special purpose vehicle under the Oil and Gas Ministry, has constructed three strategic petroleum reserves in huge underground rock caverns at Visakhapatnam on the East Coast, and at Mangaluru and Padur on the West Coast.
 - These facilities, with total capacity of 5.33 million tonnes, can meet about 10 days of India's crude oil requirements. India now plans to build another 6.5 million tonnes of storage at Padur and Chandikhole in Odisha which will augment its supply to 22 days.



- **India's Energy diplomacy:**
 - India is setting up a web of energy relationships in the extended neighborhood covering Myanmar, Vietnam in the east, with Central Asian countries like Kazakhstan and Gulf countries in the west.
 - Indo-US Nuclear deal opened new vistas for India in field of Nuclear energy facilitating cutting edge technology and nuclear fuel. India has started to engage with China, Kazakhstan and Australia for nuclear fuel.
 - India's SCO membership could now play a bigger role in ensuring greater energy cooperation between energy producers and consumers by linking Central Asia and South Asia.
- **Promotion of Renewable Energy:**
 - A renewable energy capacity of 100 GW should be achieved by 2019-20 so as to contribute to achievement of 175 GW target by 2022.
 - Solar Energy Corporation of India Limited (SECI) should develop storage solutions within next three years to help bring down prices through demand aggregation of both household and grid scale batteries.
 - A large programme should be launched to tap at least 50% of the bio-gas potential in the country by supporting technology and credit support through NABARD by 2020.

Conclusion

Major transformations are underway in global energy sector, from growing electrification to the expansion of renewable energy, upheavals in oil production and globalization of natural gas markets. India needs to build its capacity in research and skills building to deal with these transformations in energy sector. India needs to ensure long term planning to ensure universal energy access and meeting its commitment under Paris Agreement to ensure sustainable and inclusive growth.

Energy efficiency is the foundation of a strong, self-sufficient, and sustainable economy.

Comment.(250 words)

[Hindustantimes](#)

Why this question:

The article highlights the achievements of SLNP program and its contributions to energy saving efforts of the GOI.

Key demand of the question:

One has to discuss the significance of energy efficiency, in what way it can be achieved.

Directive:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

In brief explain what energy efficiency is.

Body:

First highlight that through nationwide initiatives promoting the affordability of energy efficiency solutions, the government has showcased its strong commitment to the fundamentals of sustainability. Then explain what measures are yet to be taken.

Discuss various methods to bring in and achieve the vision of energy efficiency.

**Conclusion:**

Conclude with way forward.

Introduction:

Energy efficiency simply means using less energy to perform the same task – that is, eliminating energy waste. Energy efficiency brings a variety of benefits: reducing greenhouse gas emissions, reducing demand for energy imports, and lowering our costs on a household and economy-wide level. For example, a compact fluorescent bulb is more efficient than a traditional incandescent bulb as it uses much less electrical energy to produce the same amount of light. Similarly, an efficient boiler takes less fuel to heat a home to a given temperature than a less efficient model.

Body:**Street Lighting National Programme (SLNP): a good example of energy efficient practice**

- The installation and retrofitting of energy-efficient LED streetlights under SLNP has crossed one crore.
- The initiative has enabled annual energy savings of 6.71 billion kwh reducing 4.63 million tonnes of CO2 emissions.
- The resultant energy savings have enabled the country to free up 1,119.40 MW of capacity during peak hours.
- Moreover, these energy-efficient street lights have illuminated 270,000 km of roads in India and generated 13,000 employment opportunities.
- Further, from various surveys carried out to find the satisfaction level of citizens, it is found that about 99% of the respondents feel more comfortable with the new LED installation.
- They also feel that there has been significant improvement regarding safety and business activities.
- Owing to the energy-efficient LED lights, the visibility on roads has improved significantly instilling a sense of safety among citizens.
- These smart LEDs installed under SLNP can be monitored and operated remotely through a central control and monitoring system.
- The government recognises the importance of energy efficiency and milestones like these reinforce my confidence that we will achieve our climate commitments before the targeted deadline.

India's energy efficiency initiatives:

- **Intended Nationally Determined Contribution (INDC):**
 - India has expressed a strong resolve to work towards low carbon emissions, while simultaneously achieving all developmental targets. We aim to reduce the emission intensity of GDP by 33 to 35% by 2030.
 - To protect the poor and vulnerable from the adverse impacts of climate change, it is an imperative that the world adopts a sustainable lifestyle.



- India's INDC proposal also highlights the need for a sustainable lifestyle as one of the integral solutions to climate change.
- The **National Mission for Enhanced Energy Efficiency (NMEEE)** seeks to achieve a total avoided capacity addition of 19,598 MW, annual fuel savings of around 23 million tonne and reduction in greenhouse gas emissions by 98.55 million tonne per year at its full implementation.

Way forward:

- The standards and labelling programme provide the consumer an informed choice about energy saving and thereby the cost saving potential of the products.
- We are also building capacity of discoms to help them reduce peak electricity demand.
- To incentivise efficiency in energy-intensive industries, we have launched a market-based mechanism called Perform Achieve and Trade scheme which allows trading of energy-saving certificates.
- Electric vehicles and chargers have penetrated almost every state, and smart metres are rapidly making headway into homes.

Conclusion:

Through nationwide initiatives promoting the affordability of energy efficiency solutions, the government has showcased its strong commitment to the fundamentals of sustainability. Our ultimate purpose is to promote energy efficiency as a way of life for every Indian. This vision is aligned with our commitments made under the Paris Agreement.

Science and Technology- developments and their applications and effects in everyday life; Achievements of Indians in science & technology; indigenization of technology and developing new technology.

India is preparing for a massive digital and technological transformation; in such a phase discuss India's preparedness with respect to embracing Industrial Revolution 4.0.(250 words)

[Timesofindia](https://timesofindia.com)

Why this question:

Recently, A pilot project for ushering in Industry 4.0 in the country has been launched at the Modern Coach Factory in Uttar Pradesh's Raebareli.

Key demand of the question:

The question seeks to discuss the relevance and progress of Industrial revolution 4.0 for Indian economy.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief define Industrial revolution 4.0. – The fourth Industrial Revolution describes the present technological age ongoing in 21st century that has come up since the first such revolution took place in the 18th century.

**Body:**

Explain the context of India and its progress on IR 4.0.

India has become the fourth country in the world where World Economic Forum has opened its centre for Fourth Industrial Revolution.

Hence, India is preparing for a massive digital and technological transformation.

The centre for Fourth Industrial Revolution works as a network that includes USA, China and Japan.

The centre would be based in Maharashtra and it has selected drones, artificial intelligence and block chain as the first three project areas.

NITI Aayog will coordinate the partnership on behalf of the government and the work of the centre among multiple ministries.

Conclusion:

Conclude with way forward.

Introduction:

The **fourth Industrial Revolution** describes the present technological age ongoing in 21st century that has come up since the first such revolution took place in 18th century. Industry 4.0 is a **complex cyber-physical system** which synergies production with **digital technologies, Artificial Intelligence, Big Data, Analytics, Machine Learning and Cloud computing**. A pilot project for ushering in Industry 4.0 in the country has been launched at the Modern Coach Factory in Uttar Pradesh's Rae Bareilly district.

Body:

Industrial Revolution 4.0 can help in transforming India by:

- Alleviating poverty
- Better and low-cost healthcare
- Enhancing farmer's income
- Providing new technology and equipment to farmers
- Strengthening infrastructure, improving connectivity
- Improve ease of living and ease of doing business

India's preparedness to embrace IR 4.0:

- India has become the fourth country in the world where **World Economic Forum** has opened its centre for Fourth Industrial Revolution. Hence, India is preparing for a massive digital and technological transformation.
- The centre for Fourth Industrial Revolution works as a network that includes USA, China and Japan.
- The centre would be based in Maharashtra and it has selected drones, artificial intelligence and block chain as the first three project areas.
- NITI Aayog will coordinate the partnership on behalf of the government and the work of the centre among multiple ministries.
- The Department of Science and Technology has recently launched a **programme 'Intermediary Cyber Physical Systems' (ICPS)** to foster and promote R&D in AI.



- Google at the fifth edition of its annual Google for India event announced that it is setting up a research lab focused on artificial intelligence (AI) and its applications in India. The company's AI lab — **Google Research India** — is based in Bengaluru
- The NITI Aayog has drawn up a plan for creating an institutional framework for artificial intelligence (AI) in the country. It has circulated a cabinet note to provide Rs 7,500 crore in funding for creation of cloud computing platform called AIRAWAT and research institutes.
- A national artificial intelligence (AI) programme, will see the formation of a task force under Principal Scientific Advisor K Vijay Raghavan to identify projects and initiatives in which to implement the AI technology.
- The policy will also include a national artificial intelligence centre on which will be the department that will anchor the project.
- The proposed policy and the centre could finally see the light of day as the finance ministry has cleared the NITI Aayog's Rs 7,500-crore plan.

Conclusion:

Schemes like Skill India, Startup India, Atal Innovation Mission and Digital India are developing youths to use new technologies. India's diversity, demographic potential, fast growing market size and digital infrastructure have the potential to make India a global hub for Research and Development.

Lithium-ion batteries are the edifice of the wireless technology revolution. In this context discuss their significance and challenges facing these rechargeable Lithium Batteries. (250 words)

The hindu

Why this question:

The article discusses in detail the coming of Li-ion batteries and in what way they have set off a technology revolution. The 2019 Nobel Prize for Chemistry was awarded to John B. Goodenough, M. Stanley Whittingham and Akira Yoshino for working towards the development of practical lithium-ion batteries, thus making it important from exam point of view.

Key demand of the question:

One has to explain in detail the technological revolution that Li-Ion batteries have brought in and the importance of the same with challenges.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

First explain the coming of Li-ion batteries.

Body:

Explain first why Li-ion batteries are important?

Discuss the genesis of the same.

Explain that For many years, nickel-cadmium had been the only suitable battery for portable equipment from wireless communications to mobile computing. Nickel-metal-hydride and lithium-ion emerged In the early 1990s, fighting nose-to-nose to gain customer's acceptance. Today, lithium-ion is the fastest growing and most promising battery chemistry.

List down the advantages and limitations of the same.

Conclusion:



Conclude with way forward.

Introduction:

Lithium-ion batteries are the edifice of the wireless technology revolution that made possible portable compact disc players, digital wrist watches, laptops and the mobile phones of today. It is also seen as important to a fossil-free future of electric cars that governments envisage to address climate change. The **2019 Nobel Prize for Chemistry** was awarded to **John B. Goodenough, M. Stanley Whittingham and Akira Yoshino** for working towards the development of practical lithium-ion batteries.

Body:

Lithium Ion Battery:

- It is type of **rechargeable battery** that contains several cells.
- Each cell consists of cathode, anode and electrolyte, separator between electrodes and current collectors. Li-ion battery use **intercalated lithium compound** as one electrode material.
- When the battery is **charging up**, the **lithium-cobalt oxide**, positive electrode gives up some of its lithium ions, which move through the electrolyte to the negative, graphite electrode and remain there.
- When the battery is **discharging**, the lithium ions move back across the electrolyte to the positive electrode, producing the energy that powers the battery.

Advantages:

- Li-ion batteries are rechargeable (lifecycle of 5000 recharges), highly space efficient, light-weight and low-maintenance vis-à-vis lead acid batteries.
- **High energy density:** The much higher power density offered by lithium ion batteries is a distinct advantage.
- Rate of self-discharge is much lower than that of other rechargeable cells such as Ni-Cad and NiMH forms.
- It can provide instant torque to the electric motor and maintain constant voltage throughout entire discharge cycle.
- Clean and safe technology vis-à-vis fossil fuels.

Challenges:

- Raw materials are concentrated only in few places on earth. **Example:** Afghanistan, China etc.
- They are not as robust as some other rechargeable technologies and require long durations for charging.
- They require **protection circuitry** incorporated to ensure they are kept within their safe operating limits.
- Typically they are around 40% more costly to manufacture than Nickel cadmium cells.

**Conclusion:**

India is **one of the largest importers** and in 2017, it imported nearly 150 Million US Dollar worth Li-Ion batteries. Indian manufacturers source Lithium Ion Battery from China, Japan and South Korea among some other countries. The Lithium Ion batteries currently score over the Hydrogen Fuel cells due to the former's wide applications from mobile phones to wearable devices to e-Vehicles. The **FAME India** is a part of the **National Electric Mobility Mission Plan** whose main thrust is to **encourage electric vehicles by providing subsidies**. India must however make a concerted attempt to incentivize both EVs and FCEVs.

Technological solutions to combat environment challenges might not be the best mode of action. Do you agree? Discuss with suitable illustrations. (250 words)

The hindu

Introduction:

The climate change and environmental degradation has posed some grave threats to the environment. According to **UN Water**, some 1.1 billion people worldwide lack access to water, and a total of 2.7 billion find water scarce for at least one month of the year. The recent **IPCC's "Special Report on Global Warming of 1.5°C"** revealed that the impacts and costs of 1.5 degrees Celsius of global warming will be far greater than expected. The Intergovernmental Panel on Climate Change says a **1.5°C average rise may put 20-30% of species at risk of extinction**. If the **planet warms by more than 2°C, most ecosystems will struggle**. Coral reefs are projected to **decline by a further 70-90% at 1.5°C**.

Body:

A number of technological solutions are at place to mitigate the effects of climate change. These technologies have helped humankind to find solutions to the problems posed by the climate change. However, in a world where climate change, air and water pollution, biodiversity loss, water scarcity, ozone depletion, and other environmental problems overlap, a fix in one arena can cause trouble or pose challenges in another.

- **Transport technologies:** Like Metro, pods, high speed rail which help in mass movement of the people from point to point.
- **Challenges posed:** In Mumbai, despite a sustained and widespread citizens' campaign, the Aarey forest has been chopped down. Despite a number of alternative available sites for the Metro car depot, the agency has remained stubborn on the forest land. The push for the capital-intensive Metro has come at a time when the city's bus service is in tatters. Building a Metro will prevent an increase in emissions.
- **Desalination technology:** Desalination has become a solution for many cities located in coastal areas. The saline water from the sea is treated and the water is made potable. More than 16,000 desalination plants are scattered across the globe producing fresh water, according to a **first global assessment of the sector's industrial waste**.
- **Challenges posed:** The plants produce more briny toxic sludge than fresh water. For every litre of fresh water extracted, a litre-and-a-half of salty, chemical-laden sludge called brine is dumped—in most cases—into the ocean. That's enough to cover the state of Florida in a 30-centimetre (one-foot) layer of slime.



- **Hydro Fluoro Carbons to protect ozone depletion:** The 1987 Montreal Protocol banned industrial chemicals (CFCs) dissolving stratospheric ozone, which protects us from the Sun's dangerous ultraviolet rays. To replace the forbidden molecules, used in aerosols and refrigerants, scientists invented a new category known as HFCs.
- **Challenges posed:** But there was a small problem that didn't emerge until much later: the substitutes—while harmless to the ozone layer—were **dangerous greenhouse gases**, thousands of times more potent than carbon dioxide or methane. That meant a new, protracted round of negotiations over an amendment calling for the phase of HFCs, which was finally adopted in 2016.
- **Bio-fuels:** The rise in oil prices in the 1970s, and later the looming threat of climate change, boosted the production of bio-fuels made from corn, sugarcane and palm oil. It seemed like a great idea: planet-warming CO₂ released into the atmosphere when the bio-fuels were burned would be partially offset by the CO₂ absorbed while the plants were growing.
- **Challenges posed:** The energy needed to transform and transport plant-based fuels undercuts their original purpose. To make matters worse, the newly emerging market created a perverse incentive to cut down tropical forests—far more efficient at soaking up CO₂—to make way for sugarcane and palm oil trees. When it comes to climate change, projections for how humanity can cap global warming under two degrees Celsius (3.6 degrees Fahrenheit) assume a major role for bio-fuels. But recently scientists have calculated that an area up to twice the size of India would be needed to cultivate them, which may not leave enough land to grow food.
- **Wind farms:** There are some 350,000 wind turbines scattered across the globe producing more than 500 gigawatts of clean, green energy and supplying four percent of global electricity demand.
- **Challenges posed:** But wind farms are also bird killers: up to 328,000 birds—especially those that fly at night—are felled every year by fast-spinning blades in the United States alone, where there are some 50,000 turbines. They also **disrupt ecosystems**.
- **Case Study:** A scientific study of **wind farms in the Western Ghats**, a UNESCO-listed range of mountains and forest spanning India's west coast, found that predatory raptor birds were four times rarer than in adjacent areas. Their absence cascaded down the food chain and radically altered the density and behaviour of the birds' prey. There was, in particular, an explosion in the raptors' favourite meal: fan-throated lizards.
- **Solar energy:** Photovoltaic solar panels absorb sunlight to generate electricity. This has powered many homes in developing and under-developed countries. It has shown the potential to reduce the consumption of coal for electricity generation.
- **Challenges posed:** However, the solar panels pose a challenge. A study by French investigative journalist Guillaume Pitron reveals this. The fastest growing renewable energy source includes critical metals and minerals that require a lot of energy to extract and often leave a trail of environmental devastation in their wake. Wandering the world to research his book "The Rare Metals War", Pitron said he saw mountains in southern China "cut in half vertically," and "toxic lakes" in Inner Mongolia.

Conclusion:



The need of the hour is to create solutions that are sustainable. The solutions themselves shouldn't pose further challenges, easily scalable and cost saving. Better Research and Development techniques with right validation is the way ahead before deployment on large scale.

What is ancient DNA (aDNA) and what has it been used to study? Analyse and discuss the utility of it.(250 words)

The hindu

Introduction:

Ancient DNA (aDNA) is DNA isolated from ancient specimens. Due to degradation processes (including cross-linking, deamination and fragmentation) ancient DNA is of more degraded in comparison with contemporary genetic material. Even under the best preservation conditions, there is an upper boundary of 0.4–1.5 million years for a sample to contain sufficient DNA for sequencing technologies. Genetic material has been recovered from paleo/archaeological and historical skeletal material, mummified tissues, archival collections of non-frozen medical specimens, preserved plant remains, ice and from permafrost cores, marine and lake sediments and excavation dirt.

Body:

aDNA is used to study:

- Ancient DNA can be carefully extracted from archaeologically recovered bones, teeth or fossil plant remains.
- Small fragments are processed to sequence the genome of those ancient organisms.
- aDNA becomes degraded, on account of its age and the climatic and soil conditions it was buried in.
- Techniques developed over the past three decades have led to a revolution in how we understand the evolution and genetic history of a range of animals and plants, including species that are extinct today.
- Palaeogeneticists have been able to establish how genetic variation might relate to the independent evolution of species on different continents that were previously thought to be related, or how different subspecies of horses emerged after their domestication, or how populations that today appear distinct and in different geographical areas were once related and likely existed together in one region.

Utility of aDNA from human samples:

- To understand the genetic predisposition towards certain diseases and responses to medicines in different social groups in South Asia.
- The comparison of aDNA samples with other aDNA and modern DNA databases can reveal otherwise unsuspected genetic histories.
- Researchers can trace the deep ancestry of ancient individuals and assess how their genetic makeup is distinct on account of specific variant genes (alleles), mutations and other markers and see how this compares with that of modern groups.
- Thus, the most common way of understanding the relatedness of DNA between groups and individuals is by their admixture percentages.



Case study: Ancient DNA samples of Rakhigarhi:

The journal Cell published a paper, An Ancient Harappan Genome Lacks Ancestry from Steppe Pastoralists and Iranian Farmers, which claimed that the inhabitants of the Indus Valley Civilisation lacked the steppe-pastoralist ancestry which had brought Indo-European languages into South Asia.

Another paper, published in the journal Science by the same authors and others, established baselines for the DNA of South and Central Asian populations over the last 10,000 years.

Key facts:

- The paper concludes Indians came from a genetic pool predominantly belonging to an indigenous ancient civilisation.
- The findings are based on the study of the ancient genome in the skeletons excavated from a burial site at Rakhigarhi, which is among the biggest Indus Valley locations, spread across 300 hectares near Hisar.
- It belongs to the mature phase of the Harappan period, dating back to about 2800-2300 BC.
- The paper claims Iranian genetic traits in the Indus Valley period and in present day South Asians come from ancient Iranian and South East Asian hunter-gatherers, much before the advent of large-scale farming.
- According to paper, The Iranian related ancestry in IVC derives from a lineage leading to early Iranian farmers, herders and hunter-gatherers before their ancestors separated, contradicting the hypothesis that the shared ancestry between early Iranians and South Asians reflects a large-scale spread of western Iranian farmers' east.
- Instead, sampled ancient genomes from the Iranian plateau and IVC descend from different groups of hunter gatherers who began farming without being connected by substantial movement of people.
- The paper claims: "Multiple lines of evidence suggest the genetic similarity of I6113 (the Rakhigarhi burial DNA) to the Indus Periphery Cline individuals is due to gene flow from South Asia rather than in the reverse direction."

What are Organoids? Discuss the role played by them in helping to understand diseases better. Also explain ethical challenges associated with them.(250 words)

The hindu

Why this question:

Recently, at Neuroscience 2019, the Society for Neuroscience's 49th annual meeting, held in Chicago, U.S., two neuroscientists warned the gathering that fellow scientists are "perilously close" to crossing the ethical red line of growing mini-brains or Organoids in the laboratory that can perceive or feel things.

Key demand of the question:

One has to discuss the concept of Organoids in detail, its advantages and disadvantages along with the critical analysis of the ethical concerns involved.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:



Define what Organoids are.

Body:

Explain that Organoids are a group of cells grown in laboratories into three-dimensional, miniature structures that mimic the cell arrangement of a fully-grown organ. They are tiny (typically the size of a pea) organ-like structures that do not achieve all the functional maturity of human organs but often resemble the early stages of a developing tissue.

Discuss their salient features.

Explain how Organoids are grown in the laboratory?

Discuss the ethical concerns involved.

Conclusion:

Conclude with way forward.

Introduction:

Organoids are a group of cells grown in laboratories into three-dimensional, miniature structures that mimic the cell arrangement of a fully-grown organ. They are tiny (typically the size of a pea) organ-like structures that do not achieve all the functional maturity of human organs but often resemble the early stages of a developing tissue. Most organoids contain only a subset of all the cells seen in a real organ, but lack blood vessels to make them fully functional. In the case of brain organoids, scientists have been able to develop neurons and even make specific brain regions such as the cerebral cortex that closely resemble the human brain. The largest brain organoids that have been grown in the laboratory are about 4 mm in diameter.

Body:

Role of Organoids in understanding diseases:

- Organoids offer new opportunities to studying proteins and genes that are critical for the development of an organ.
- This helps in knowing how a mutation in a specific gene causes a disease or disorder.
- In a study in Europe using intestinal organoids from six patients with an intestine disorder, it became possible to identify the mutation in a gene that prevented the formation of a healthy intestine.
- Researchers have used brain organoids to study how the Zika virus affects brain development in the embryo.
- Scientists are already using stem cells taken from tumours to grow organoids that are poised to develop cancer.
- The ability to grow organoids using cancer stem cells allows researchers to study the genes, proteins and signalling pathways that cancer cells use to develop and grow.
- They are also using healthy organoids to identify and verify the gene mutations that cause cancer.

Other benefits:

- Organoids can be used to study the safety and efficacy of new drugs and also test the response of tissues to existing medicines.



- Organoids will bring precision medicine closer to reality by developing patient-specific treatment strategies by studying which drugs the patient is most sensitive to.
- Since the use of animals during drug development studies is becoming increasingly difficult, the focus has been on refining, reducing and replacing them.
- While scientists have been increasingly using human cell lines and other methods, such alternatives have some inherent limitations — they cannot mimic the whole organ system.
- Organoids are a far superior alternative to cell lines.

Ethical concerns posed:

- In some cases, scientists have already transplanted such lab-grown brain organoid to adult animals.
- These are seen as a step towards **potential “humanisation” of host animals**.
- Scientists argue that organoids **do not have sensory inputs and sensory connections** from the brain are limited.
- Isolated regions of the brain cannot communicate with other brain regions or generate motor signals.
- Thus, the possibility of consciousness or other higher-order perceptive properties, such as the ability to feel distress, emerging seems extremely remote.

Conclusion:

Despite organoids providing bright prospects which can change the future of medicine and technology in medicine, the associated concerns must be tackled at the earliest.

What are Nano pharmaceuticals? Discuss their key features and elucidate on the role played by them in extending the economic life of proprietary drugs. (250 words)

Livemint

Why this question:

Recently, Guidelines were released for Evaluation of Nano pharmaceuticals in India.

Key demand of the question:

Explain what are Nano pharmaceuticals, their utility, advantages and possible concerns.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Define what Nano pharmaceuticals are.

Body:

Nano pharmaceuticals represent an emerging field where the sizes of the drug particle or a therapeutic delivery system work at the Nano scale.

Describe briefly the recently launched guidelines.

Explain the significance of such guidelines.

Bring out the applications of Nano pharmaceuticals.

Conclusion:

Conclude with advantages; suggest that Nano pharmaceuticals have the ability to extend the economic life of proprietary drugs, thereby creating additional revenue streams.

**Introduction:**

Nano pharmaceuticals are a relatively new class of therapeutic-containing nanomaterials that often have unique “nanoproperties” (physiochemical properties) due to their small size (compared with their bulk-phase counterparts) a high surface-to-volume ratio and the possibility of modulating their properties. Recently, the Government of India released “Guidelines for Evaluation of Nano-pharmaceuticals in India”.

Body:**Nano-pharmaceuticals key features:**

- A Nano-material can be defined as material having a particle size in the range of 1 to 100 nm in at least one dimension.
- Nano-formulations are not entirely new drugs but medicines that have better quality because of the technology-led delivery mechanisms that are used to make its administration in the body more effective.
- Nanopharmaceuticals are rapidly emerging sub-branch that deals with the drug-loaded nanocarriers or nanomaterials that have unique physicochemical properties and minute size range for penetrating the Central Nervous system
- Nano-pharmaceuticals can be tailored with functional modalities to achieve active targeting to the brain tissues.
- The magic behind their therapeutic success is the reduced amount of dose and lesser toxicity, whereby localizing the therapeutic agent to the specific site.
- **Role played by them in extending the economic life of proprietary drugs:**
 - They present novel reformulation opportunities for active agents (e.g., single molecule drugs, proteins, nucleic acids, etc.) that were previously insoluble or could not be targeted to a specific site of the body where they were needed.
 - Nano-pharmaceuticals can also increase drug half-life by reducing immunogenicity and diminishing drug metabolism.
 - They are expected to bring about a revolution in treatment strategies as they would enable targeting specific delivery of drugs and therapeutic molecules.
 - They offer higher efficacy and lower toxicity in many disease conditions.
 - They are expected to be of great use particularly in cancer treatment.
 - With these advantages, nano-pharmaceuticals have the ability to extend the economic life of proprietary drugs, thereby creating additional revenue streams.

Conclusion:

Nanopharmaceuticals have enormous potential in addressing this failure of traditional therapeutics which offers site-specific targeting of active agents. Such precision targeting via nanopharmaceuticals reduces toxic systemic side effects, resulting in better patient compliance.



When used sensibly, Big data can save lives and help build better future citizens. Explain with suitable illustrations.(250 words)

Reference

Why this question:

The article highlights the importance of Big data as a technology for building better future for citizens.

Key demand of the question:

Bring out the significance of Big Data as a technology. Its applications in detail.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In brief define what Big Data is and explain its evolution.

Body:

Explain first the relevance of Big Data and its emergence as a powerful tool.

Mention the significance of Big Data in India.

Then move on to discuss how big data can help vulnerable people manage their health and lives.

List down the applications of Big Data ranging from governance, economy, disaster management etc.

Conclusion:

Conclude with way forward.

Introduction:







Big data is a term for data sets that are so large or complex that traditional data processing application software is inadequate to deal with them. Almost 90% of the world's data today was generated during the past two years. "Big data" refers to the use of predictive analytics, user behavior analytics, or certain other advanced data analytics methods that extract value from data. Big data can be understood as the consolidation and centralization of public data inputs from various spheres of activities like commercial, consumer based, census, or even Aadhar controlled personal information.

Body:



The six Vs of big data

Big data is a collection of data from various sources, often characterized by what's become known as the 3Vs: *volume*, *variety* and *velocity*. Over time, other Vs have been added to descriptions of big data:

| VOLUME | VARIETY | VELOCITY | VERACITY | VALUE | VARIABILITY |
|---|---|---|---|---|---|
| The amount of data from myriad sources. | The types of data: structured, semi-structured, unstructured. | The speed at which big data is generated. | The degree to which big data can be trusted. | The business value of the data collected. | The ways in which the big data can be used and formatted. |
|  |  |  |  |  |  |

Big data can be used in a variety of applications which can help build better future for citizens.

Good Governance:

- Big data with the government is a huge boon for governance.
- Consumer habits can be studied and policies can be framed which would then be in line with the need of the hour.
- Patterns of investment, savings and expenditure can be revisited with changing time and government can instil such changes in its policies.
- Security of the state can be further enhanced by access to larger data.
- Transforming government programmes and empowering citizens to improving transparency and enabling the participation of all stakeholders.
- Geo-tagging in MGNREGA can help analyse the effectiveness of the policy geographically and bring in required changes.
- The Digital India and Smart Cities initiatives of the government also include efforts to utilise data to design, plan, implement, manage, and govern programmes.

Economy:

- Big data can provide huge benefits to various sectors of the economy like,
- In Insurance Sector to improve customer experience & ensure their right to claim
- In Banking Sector to manage financial data
- To capture the production, price statistics, & calculate the resultant GDP
- Evade risks & minimize losses for financial firms
- Tax officials catching hold the tax evaders using Project Insight



Health Care: Big Data in health care caters the following benefits:

- Predicting diseases,
- Prescribing medicines,
- Optimizing treatment,
- Using clinical data to improve patient care,
- In critical Diagnostic tests,
- Finding new cures (R&D)

Agriculture and Food:

- Seed Selection
- Geo-Tagging to keep the track record of agricultural assets in the country
- Weather Forecasting
- Irrigation & effective water management
- Food Processing
- Identification of Crop Diseases

Digital Space:

- In the telecom sector- connecting the hinterland areas and bringing them to the mainstream,
- On Social Media for targeting platform users,
- Artificial Intelligence – Controlling home appliances,
- Analysing & Improving individual performance (at work, sports, or home) using wearable devices.

Way forward:

- Ethical issues related to data privacy need to get addressed.
- Data protection law must incorporate some of the best practices followed in the World.
- It must strengthen cybersecurity in order to safely utilize the large pool of virtually available data.
- Economically, the alliance of big data with blockchain technology will potentially change the way we see big data for now.
- To effectively analyse the large chunks of available data, well-equipped data centres are needed. It is essential to segregate the relevant data from the irrelevant data pool.
- In a world where most of the governments & businesses rely more on new-age data sources such as satellite imagery, parking images, and night lights, Big Data governance could be a game-changer for India, where policies have for long been under-implemented.

**Conclusion:**

The big data revolution is in its early days and most of the potential for value creation is still unclaimed. But it has set the industry on a path of rapid change and new discoveries. Stakeholders committed to innovation will likely be the first to reap rewards. If the farmers would have been concerned about the infirmities in terms of data-based farming, production could be increased.

INSIGHTSIAS



Awareness in the fields of IT, Space, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.

Artificial Intelligence, is it an end to human miseries or an end to humanity itself?

Critically analyse.(250 words)

The hindubusinessline

Introduction:

Artificial Intelligence (AI) brings in a host of real-world applications which had earlier merely been a subject of science fiction novels or movies. The breakthroughs such as the Weather Company's to be launched, **the GRAF model** capable of predicting a thunderstorm virtually anywhere on the planet every hour and other such applications are useful. AI has made inroads to automation and decision support systems to complement or augment human abilities.

Body:

AI is being widely used today as shown below

- AI enhances the ability of computer systems to learn from their experiences over time, makes them capable of reasoning, perceiving relationships and analogies, helps solve problems, as well as respond in natural languages and adapt to new conditions.
- AI allows machines to sense and comprehend their surroundings and act according to their own intelligence or learning.
- **Governance:**
 - As India is poised for reforms in governance, AI can actually help with process optimization and cost savings for the government, in addition to solving some strategic problems or assisting in decision making.
- **Economy:**
 - Economic growth is vital for development, and the next generation of economic growth is anticipated to be fuelled by technologies relating to big data, block chain, quantum computing and AI. These game changing technologies will spur innovation, create value for the investors, generate specialized job domains and as a result, propel economic growth.
 - Issues such as tax evasion, money laundering etc can be easily addressed using AI.
 - 68% of Indian business decision-makers believe AI will help their business in various ways such as boosting productivity, generating growth and addressing societal issues
 - India has one of the world's largest automotive industries, with a significant production and consumption base. AI applications have vast scope in the automotive sector, ranging from enhancing fuel efficiency to passenger safety to the concept of self-driving vehicles.
- **Healthcare:**
 - Healthcare sector in India is burgeoning with innovation and demand, having business models unique to the Indian requirements and spending power.



- AI can augment the potential of government and private sector to deliver healthcare services and products with improved drug safety, better diagnosis and analysis of clinical reports for preventive and accurate treatment.
- **Defence:**
 - More advanced applications of AI extend to the domains of foreign, defence and security policies. Deep learning in AI can unravel futuristic functions by augmenting decision making ability of the humans with access to the information derived from large data sets.
- **Security:**
 - AI has many peace time applications as well. It can be used to train soldiers and pilots, simulate war-game, synthesize information from surveillance systems and address critical problems in optimizing logistics, fleet management and maintenance
 - Vision and Voice systems to interpret and comprehend visual inputs such as images, clinical diagnosis and facial recognition or voice inputs to recognize the source of the sound.
 - Law enforcement or internal security requirements for detecting and recognizing individuals or criminals, with multitudes of data streaming from police databases or the network of surveillance cameras.
 - Banking and financial services for fraud detection using advanced algorithms to identify patterns in transactions and consumer behaviours which are risk prone.
 - AI is also helping insurance providers arrive at better risk assessment.
- Countries such as India can benefit a lot from the use of AI by focusing on sectors such agriculture, manufacturing, infrastructure etc.

Concerns and Risks:

- The armed forces of US and China have already invested billions of dollars to develop LAWS, intending to gain strategic and tactical advantage over each other. This runs the risks of an arms race.
- There is no clearly stated policy document or vision statement for AI development.
- AI has to meet the first and foremost challenge of acceptability with the users from the government, public sector and the armed forces, or even the private sector.
- As users of AI, their interest in the technology augmenting their own ability, and not posing a threat, is quite pertinent.
- Technical competence in this fast-paced sector, primarily in the case of government, could be a road block.
- AI can better adapt to the goals and expectations of the Indian decision makers, if the technology development is indigenous. Foreign dependence in this case would be detrimental and unproductive.
- AI has set off an **economic and technological competition**, which will further intensify.



- **LAWs** operate without human intervention, and there is formidable challenge in distinguishing between combatants and non-combatants, which is a subject of human judgment.
- **AI powered bots** have also been used to influence humans perceptions, views and opinions. Such activities are rampantly being promoted through social media platforms for various ulterior purposes using fake news, unethical advertisements, etc which then have huge negative consequences.
- **AI based weapons** are fast gaining currency. Since humans can be replaced by such machines, declaring war would become more convenient. These machines can wreck havoc if uncontrolled endangering the human race itself.
- AI is being used for **extensive surveillance** as in China which violates right to privacy. Such intelligence can be even used to selectively target and eliminate opponents which instil deep fear among people who would like to raise voice against injustice.
- Humans can pass on their limitations to robots. E.g.: biases, prejudices, discrimination, etc. A recent report in USA revealed that robot can be racist.

Conclusion:

“The greatest enemy of knowledge is not ignorance, it is the illusion of knowledge” was what **Stephen Hawking** said. The transformative capability of AI in India is huge, and must be rooted in an egalitarian ethical basis. Any institutional framework for AI should have a multidisciplinary and multi-stakeholder approach, and have an explicit focus on the ethical basis.

Do you think it is imperative that India’s legal prowess be applied to the situational complexities of space exploration? Discuss in the backdrop of world’s first space crime. (250 words)

The hindu

Why this question:

The article discusses in detail the need for legal system in addressing any crimes arising out of space.

Key demand of the question:

One must bring out and reason with substance the need to have a legal system to address situational complexities of space exploration.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

One can start by highlighting the space race that the world countries are into.

Body:

First discuss how far world countries have come in terms of space explorations and what has made space exploration systems complex to address.

Explain that it is time to answer the questions like – What will happen when legal issues that are beyond the foresight of existing agreements arise? What will happen when crimes take place on commercial space vehicles sent by private corporations, third-party nations, and jurisdictions not already covered?

Conclusion:

Conclude with way forward.

**Introduction:**

It was recently reported that the “world’s first space crime” may have been committed by a NASA astronaut, Anne McClain. She is suspected of signing into the personal bank account of her estranged spouse from a computer aboard the International Space Station (ISS). In this context, it is necessary to understand the ambit of space laws, issues in this relation and way forward.

Body:**The case of Anne McClain:**

- Currently, there is no detailed framework for international space law nor is there any way to handle criminal disputes that arise on commercial space vessels.
- It gets even less defined when it comes to disputes between individuals from separate countries.
- Our only outer space presence comes from the International Space Station, which is currently governed under an international treaty called the **Intergovernmental Agreement (IGA) on Space Station Cooperation**.
- Article 22 of the Agreement concerns itself with criminal jurisdiction and states that countries which are mentioned in the agreement may exercise criminal jurisdiction over personnel in flights who are their respective nationals.
- Hence, the laws of the U.S. will be applicable in this situation concerning the first space crime.
- There are legal documents that govern space, such as the Outer Space Treaty, the Moon Agreement, the Registration Convention, the Rescue Agreement, and the Liability Convention, none of them comprehends a detailed framework to cater to criminal disputes that might arise on commercial space vessels, which will have personnel and space tourists from different jurisdictions.

Issues persist:

- NASA has recently announced the opening of the ISS for commercial uses like filming etc. which can naturally give rise to crimes committed in outer space.
- India is presently not a party of IGA but will have to become considering its ambitious projects like the Gaganyaan etc.
- If so, India will have to include provisions relating to offences in space in the Indian Penal Code, as that could be material in situations involving outer space, Indian citizens, and space equipment.

Way forward:

- Thus it is opined that India’s legislature should proactively legislate on this front and remain apace in space exploration missions.
- India might also need to formulate new international agreements on space, or sign MOUs to that effect.



- It is imperative, therefore, that India's legal prowess is therefore applied urgently and rigorously to the situational complexities of space exploration.
- Only by keeping pace with the explosive growth in space technology can India hope to remain at the forefront of scientific development in this exciting field.
- More comprehensive international codes and legislation will need to be drafted and thought up as space becomes increasingly more populated.

Espionage activities through the use of digital tools are increasing in the recent past, in this context discuss the need for India to invest and recruit heavily in counter-measures against social media espionage. (250 words)

The hindu

Why this question:

Espionage activities through the use of digital tools are increasing in the recent past. The article presents a detailed discussion on the same.

It was recently found out that a spy from Pakistan had managed to get access to secret and crucial information pertaining to Indian security through the means of honey-trap by using social media.

Key demand of the question:

Discuss the emergence of espionage and other methods of cyber terrorism with the coming of newer digital tools and the urgency to curb them.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief narrate what are Espionage activities.

Body:

Discuss the emergence of espionage activities with increasingly coming of digital tools – for example explain what Honey trap is? – It is an investigative practice involving the use of romantic or sexual relationships for interpersonal, political, or monetary purpose.

Discuss what are the challenges involved.

Explain what measures need to be taken.

Role of government agencies and other stakeholders.

Conclusion:

Conclude with way forward.

Introduction:

Cyber espionage, is "the act or practice of obtaining secret information without the permission of the holder of

the information (personal, sensitive, proprietary or of classified nature), from individuals, competitors, rivals, groups, governments and enemies for personal, economic, political or military advantage using methods on the

Internet, networks or individual computers through the use of cracking techniques and malicious software including Trojan horses and spyware." Simply said, Cyber espionage is "The use of computer networks to gain illicit access to confidential information, typically that held by a government or other organization."

Body:



honey-trap cases are a weapon of hybrid warfare being waged by the enemy across the borders.

Instances of Cyber Espionage:

- Using social media profile, by infecting their lives and devices. The second is to find someone on adult sites and inject malware into their phones and computers. According to reports, three of the world's 20 most visited websites are pornographic-related sites.
- It is important to note that 25% of all Android malware is porn-related. A 2017 study found that a hacker collective known as KovCoreG had been targeting millions of users of the site Pornhub, tricking them into installing viruses on their computers.
- Indian Army reported two cases of honey-trapping in 2015 and another two in 2017.
- The Indian Air Force reported one case in 2015, while the Navy did not report any.

Counter-Measures needed:

- An information warfare team is being set up at the Army headquarters.
- Suspected Twitter handles and Facebook accounts have also been identified.
- Investing in the latest technologies for early and better detection of viruses.
- Conducting frequent workshops to sensitise defence personnel against cyber risks.
- Conducting timely reviews and audits of all devices; developing better protocols in the event of contamination.
- Developing a methodology to embed dormant malware in all sensitive data and devices which will be able to track the bad actors and destroy the documents with a programmed kill switch.
- Developing a doctrine to hit back. The Defence Cyber Agency should be leveraged towards this end.
- Best cyber practices must be built amongst fresh recruits.
- Reforms in Indian intelligence need to cover a lot of ground, especially in providing a firm legal basis to the agencies involved in the trade. But they must begin with a complete overhaul of the recruitment process.

Conclusion:

In this information age, the enemy will be relentless and continue to invest and recruit heavily in these methods. India needs to act fast to deter such threats.

Edge computing is the new future face of cloud computing. Elucidate while explaining the relevance of edge computing in the coming times. (250 words)

[Indianexpress](#)

Why this question:

The article suggests that By 2025, according to the global research and advisory firm Gartner, companies will generate and process more than 75% of their data outside of traditional centralized data centres — that is, at the “edge” of the cloud.

Key demand of the question:



The question expects us to elaborate on the new technology of edge computing and in what way it will be the new face of cloud.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Define what is edge computing? – Edge computing enables data to be analyzed, processed, and transferred at the edge of a network.

Body:

Explain the application of cloud computing first, and then discuss in what way edge computing is different from it.

Cloud computing — by which remote servers hosted on the Internet store and process data, rather than local servers or personal computers — is ready to move to the next level.

Amazon, Microsoft, and Alphabet, the parent company of Google — the technology giants that provide cloud computing infrastructure to major corporates and governments — want to leverage 5G wireless technology and artificial intelligence to enable faster response times, lower latency (ability to process very high volumes of data with minimal delay), and simplified maintenance in computing. This is where Edge Computing comes in — which many see as an extension to the cloud, but which is, in fact, different in several basic ways.

Quote relevant examples highlighting the uses of such applications.

Conclusion:

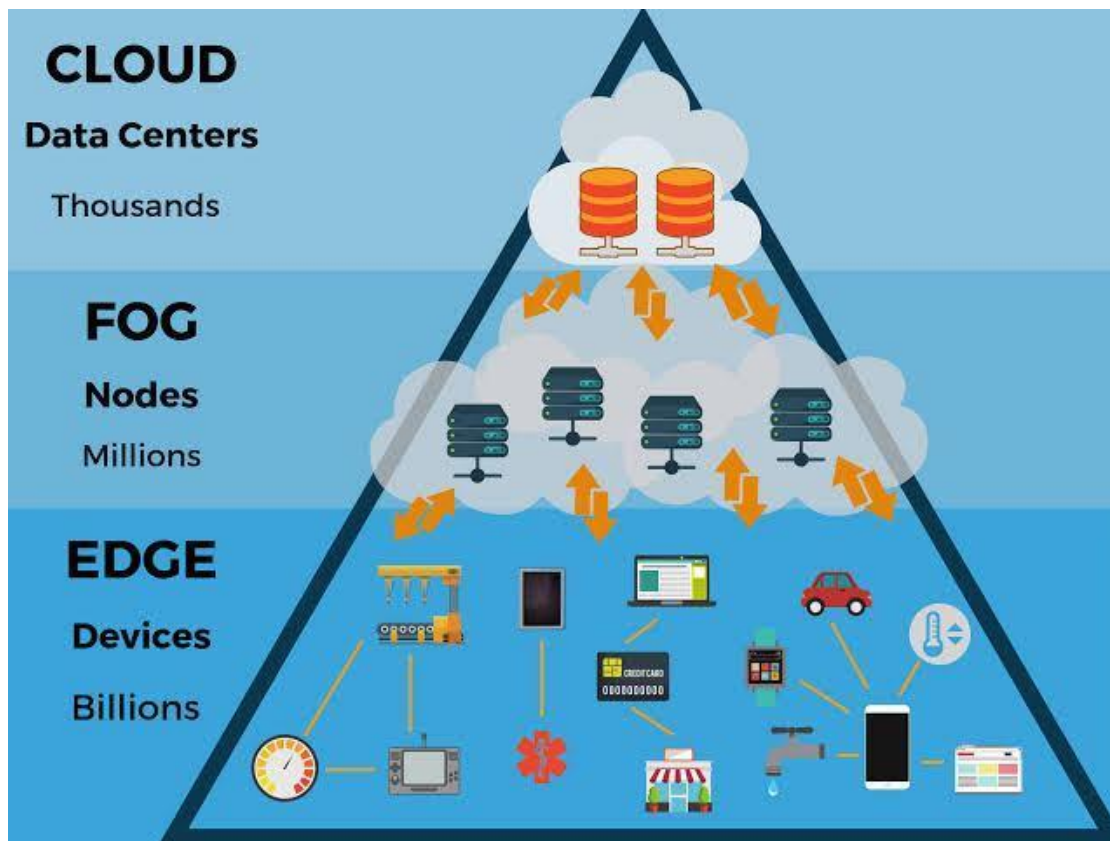
Conclude with way forward.

Introduction:

Edge computing enables data to be analysed, processed, and transferred at the edge of a network.

The idea is to analyse data locally, closer to where it is stored, in real-time without latency, rather than send it far away to a centralised data centre. So whether you are streaming a video on Netflix or accessing a library of video games in the cloud, edge computing allows for quicker data processing and content delivery.

Body:



Edge computing vis-à-vis Cloud computing:

- Edge Computing can be seen as an extension to the cloud, but which is, in fact, different in several basic ways.
- By 2025, says the global research and advisory firm Gartner, companies will generate and process more than 75% of their data outside of traditional centralised data centres — that is, at the “edge” of the cloud.
- At the moment, the existing Internet of Things (IoT) systems perform all of their computations in the cloud using data centres.
- **Edge computing**, on the other hand, essentially manages the massive amounts of data generated by IoT devices by storing and processing data locally.
- That data doesn’t need to be sent over a network as soon as it processed; only important data is sent — therefore, an edge computing network reduces the amount of data that travels over the network.
- Technologies such as 5G wireless technology and artificial intelligence enable faster response times, lower latency (delay), and simplified maintenance in computing.
- It is preferred over cloud computing in remote locations, where there is limited or no connectivity to a centralized location. These locations require local storage, similar to a mini data centre, with edge computing providing the perfect solution for it.

Relevance of Edge computing in coming days:



- Edge application services reduce the volumes of data that must be moved, the consequent traffic, and the distance that data must travel.
- That provides lower latency and reduces transmission costs. Computation offloading for real-time applications, such as facial recognition algorithms, showed considerable improvements in response times as demonstrated in early research.
- Further research showed that using resource rich machines near mobile users, called cloudlets, offering services typically found in the cloud, provided improvements in execution time when some of the tasks are offloaded to the edge node.
- For instance: Nvidia, one of the biggest players in the design and manufacture of graphics and AI acceleration hardware, has just announced its EGX edge computing platform to help telecom operators adopt 5G networks capable of supporting edge workloads.
- The new Nvidia Aerial software developer kit will help telecom companies build virtualised radio access networks that will let them support smart factories, AR/VR and cloud gaming.
- Other notable applications include connected, autonomous cars, smart cities, and home automation systems.

Conclusion:

Experts believe the true potential of edge computing will become apparent when 5G networks go mainstream in a year from now. Users will be able to enjoy consistent connectivity without even realising it.

Conservation, environmental pollution and degradation, environmental impact assessment

What is Single Use Plastic? Discuss the challenges posed by them and explain in what way one can deal with the plastic menace steadily and replace it? Also suggest way forward. (250 words)

[youtube](#)

Why this question:

The TV debate captures the issues associated with single use plastic and the challenges associated with it.

Key demand of the question:

One must explain in detail the issues associated with single use plastic and the challenges in overcoming the threats posed by it and in managing and eradicating the menace totally.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In brief narrate the recent ban placed on single use plastic in the country.

Body:



Explain the following dimensions:

Provide some statistics/data on single use plastic usage to set the background.

Explain what is single use plastic? – Single-use plastics, also referred as disposable plastics, are commonly used for plastic packaging and intended to be used only once before they are thrown away or recycled. These include grocery (polythene) bags, food packaging, bottles, straws, containers, cups, cutlery etc.

Discuss the challenges involved in detail.

Why we need to ban single-use plastic? Its impact and Government's Initiatives against plastic menace.

Conclusion:

Conclude with way forward.

Introduction:

Single Use plastic is a form of plastic that is disposable, which is only used once and then has to be thrown away or recycled. The single-use plastic items include plastic bags, water bottles, soda bottles, straws, plastic plates, cups, most food packaging and coffee stirrers. The single-use plastic products also prevent the spread of infection. Instruments such as syringes, applicators, drug tests, bandages and wraps are often made to be disposable. Also, single-use plastic products have been enlisted in the fight against food waste, keeping food and water fresher for longer and reducing the potential for contamination

Body:

Govt. of India has laid great emphasis on eradicating single use plastic which has become one of the biggest sources of pollution. During his Independence Day Speech this year Prime Minister had urged the people to take a pledge on Mahatma Gandhi's 150th Anniversary on 2nd October to make the country free of single use plastic

Challenges posed:

- Petroleum-based plastic is not biodegradable and usually goes into a landfill where it is buried or it gets into the water and finds its way into the ocean.
- Plastic in oceans and forests are choking flora and fauna. In fact, plastic trash is expected to exceed the fish population in 2050.
- Microplastics have ability to enter food chain with the highest concentration of the pollutants.
- **The PWM Rules Amendment, 2018**, omitted explicit pricing of plastic bags that had been a feature of the 2016 Rules.
- Waste plastic from packaging of everything from food, cosmetics and groceries to goods delivered by online platforms remains unaddressed.
- The fast moving consumer goods sector that uses large volumes of packaging, posing a higher order challenge.
- Lack of adequate infrastructure for segregation and collection is the key reason for inefficient plastic waste disposal.
- Small producers of plastics are facing the ban, while more organised entities covered by the Extended Producer Responsibility clause continue with business as usual.



- Lack of consultation with stakeholders such as manufacturers of plastics, eateries and citizen groups: This leads to implementation issues and inconvenience to the consumers.
- Exemptions for certain products such as milk pouches and plastic packaging for food items severely weaken the impact of the ban.
- No investment in finding out alternative materials to plug the plastic vacuum: Until people are able to shift to a material which is as light-weight and cheap as plastic, banning plastic will remain a mere customary practice.
- Lack of widespread awareness among citizens about the magnitude of harm caused by single-use plastic: Without citizens 'buying in' to a cause, bans only result in creating unregulated underground markets.
- No strategy to offset the massive economic impact: Sweeping bans like the one in Maharashtra are likely to cause massive loss of jobs and disruption of a large part of the economy dependent on the production and use of plastic.

Measures needed:

- Target the most problematic single-use plastics by conducting a baseline assessment to identify the most problematic single use plastics, as well as the current causes, extent and impacts of their mismanagement.
- Consider the best actions to tackle the problem (e.g. through regulatory, economic, awareness, voluntary actions), given the country's socio-economic standing and considering their appropriateness in addressing the specific problems identified.
- Assess the potential social, economic and environmental impacts (positive and negative) of the preferred short-listed instruments/actions. How will the poor be affected? What impact will the preferred course of action have on different sectors and industries?
- Identify and engage key stakeholder groups – retailers, consumers, industry representatives, local government, manufacturers, civil society, environmental groups, tourism associations – to ensure broad buy-in. Evidence-based studies are also necessary to defeat opposition from the plastics industry.
- Raise public awareness about the harm caused by single-used plastics. Clearly explain the decision and any punitive measures that will follow.

Way forward:

- Promote alternatives like cotton, khadi bags and bio-degradable plastics.
- Provide economic incentives to encourage the uptake of eco-friendly and fit-for-purpose alternatives that do not cause more harm. Support can include tax rebates, research and development funds, technology incubation, public-private partnerships, and support to projects that recycle single-use items and turn waste into a resource that can be used again.
- Reduce or abolish taxes on the import of materials used to make alternatives.
- Provide incentives to industry by introducing tax rebates or other conditions to support its transition. Governments will face resistance from the plastics industry, including importers and distributors of plastic packaging. Give them time to adapt.



- Use revenues collected from taxes or levies on single-use plastics to maximize the public good. Support environmental projects or boost local recycling with the funds. Create jobs in the plastic recycling sector with seed funding.
- Enforce the measure chosen effectively, by making sure that there is clear allocation of roles and responsibilities.
- Monitor and adjust the chosen measure if necessary and update the public on progress.
- **International examples:**
 - The success of imposing a plastic bag fee has also been established in cities like Chicago and Washington, showing that such interventions could be effective in shaping behaviour change.
 - The European Union is mulling new laws to ban some everyday single-use plastic products including straws, cutlery and plates citing plastic litter in oceans as the concern prompting the action.
 - Countries such as the U.S., Canada and the Netherlands have already put in place regulations to stop the use of microbeads in personal-care products. The sooner India adopts such regulations, the better
- **Encouraging logging:** Picking up litter while jogging or strolling was kick-started on a small scale in a small part of Stockholm about an year ago, it has spread across the globe and India can adopt this as well.

The government of India's bid to build a Green wall will be a breakthrough development if fulfilled successfully. Comment.(250 words)

Livemint

Why this question:

The article provides for the detailed presentation of the scheme for Green wall proposed by the government of India on the lines of the Green wall of Sahara in Africa.

Key demand of the question:

One has to explain the relevance of such move to the environmental efforts of the government.

Directive:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

In brief explain how the idea is a true inspiration.

Body:

Discuss the grand significance of such a pilot project that is a great step forward in terms of reducing carbon foot print on Earth.

India is reportedly planning to undertake a vast reforestation exercise along the Aravalli hill range that stretches from the Ridge of Delhi to Banaskantha in Gujarat.

Provide for a brief discussion on the African green belt too.

Discuss the aim behind the project and assert upon its significance.

Conclusion:

Conclude that it is a positive step forward to deal with the issue of climate change and global warming.

Introduction:



‘Green wall of India’ is the proposal of a 1 a 1,400km-long and 5km-wide green corridor all the way from Panipat in Haryana to Porbandar in Gujarat. India is reportedly planning to undertake a vast reforestation exercise along the Aravalli hill range that stretches from the Ridge of Delhi to Banaskantha in Gujarat. It should reassure us that ecological concerns haven’t fallen off the map. The Green wall of India would be modelled on the so-called Great Green Wall of Africa that was envisioned to run from Djibouti in the continent’s east to Senegal in its west.

Body:

Need for the initiative:

- Felling of trees is turning greenery scarce, but other forms of depredation too is also hurting.
- Unauthorized mining for minerals and building materials, for instance, has gone on unchecked for much too long.
- Around 96.4 million hectares, or nearly 30% of India’s total land, is estimated to have been degraded already.
- The desertification and land degradation atlas of India, brought out by the ISRO in 2016, revealed that Gujarat, Rajasthan and Delhi were among states/UT where more than 50% of the total area was degraded land and those under the threat of desertification.
- Two-thirds of all Indian households still live off the land and land degradation puts their livelihoods at direct threat.
- Global warming has begun to distort rainfall and other climatic patterns that have sustained our ecological systems for millennia.

SHIELD AGAINST DESERT



➤ Forest belt likely to run roughly from **Porbandar to Panipat**, covering entire Aravali range and beyond

➤ ‘Green wall’ will act as barrier for dust from west and check eastward march of Thar desert

➤ It will check desertification by **restoring degraded land through massive afforestation**

➤ Project yet to get formal nod, details to be worked out

Green wall – a breakthrough initiative:

- It would act as a **defensive flank against climate change, desertification and other forms of land degradation.**



- The Delhi metropolitan region's expansion has resulted in widespread deforestation around the capital.
- The Aravalli range, which separates western India's Thar desert from the relatively green plains to its east, has lost so much green cover that it is losing its ability to act as a natural barrier against the heat and dust that blows in from the west.
- The greener the green wall remains, say ecologists, the less likely that the desert will expand into the rest of the Indian landmass.
- Without top-level intervention in favour of vegetation, environmentalists warn, the Thar desert's expansion could even threaten the "granary of India"—the fertile belts of Punjab, Haryana, western Uttar Pradesh and the Malwa region.
- If this is so, then the proposed project could insure the country against a potential crisis of food insufficiency in the decades ahead.
- The very idea behind it could inspire tree plantation drives elsewhere around the country.

Conclusion:

The green belt may not be contiguous, but would roughly cover the entire degraded Aravali range through a massive afforestation exercise. A legacy programme like converting such a huge tract of land as a green belt in high-intensive land-degraded states will be great boost towards meeting India's target.

Explain the significance of C40 Clean Air Cities Declaration. Why do you think cooperation at global level is necessary? Discuss the challenges and ways to address air pollution across the global cities. (250 words)

Hindustantimes

Why this question:

Clean Air Cities Declaration' was unveiled at the C40 World Mayors Summit in Copenhagen, an event that occurs once every three years and is designed to implement "substantive clean air policies by 2025".

Key demand of the question:

One must explain the significance of C40 Clean Air Cities Declaration and the increasing need to address the issue of air pollution across the world cities.

Directive:

Comment

Structure of the answer:

Introduction:

One can start by quoting relevant statistics/data highlighting the air pollution issue.

Body:

Explain first the key features of the C40 Clean Air Cities Declaration.

Through this Declaration, mayors commit to using their power and influence to reduce air pollution and work towards meeting the World Health Organization's Air Quality Guidelines.

This means cities will continually reduce their local emissions, and advocate for reductions in regional emissions, resulting in continuous declines in air pollution levels that move towards the WHO guidelines.

Discuss why we need a global action to tackle the menace of air pollution?

Suggest solutions.

Conclusion:

Conclude with way forward.

Introduction:



C40 is a network of the world's megacities taking action to address climate change. It is a group of 94 cities around the world that represents one-twelfth of the world's population and one-quarter of the global economy. The summit was launched in London in 2005 when the then London Mayor convened representatives from 18 megacities.

Body:**Significance of C40 Clean Air cities declaration:**

- The aim of the summit is also to show how cities are delivering their strong commitments for healthier, sustainable, resilient and inclusive future.
- C40 supports cities to collaborate effectively, share knowledge and drive meaningful, measurable and sustainable action on climate change.
- It has been created and led by cities and is focused on tackling climate change and driving urban action that reduces greenhouse gas emissions and climate risks while increasing the health, wellbeing and economic opportunities of urban citizens.
- Signatories set ambitious pollution reduction targets within two years that meet or exceed national commitments, putting them on a path towards meeting World Health Organization guidelines;
- Implement substantive clean air policies by 2025 that address the unique causes of pollution in their cities
- They publicly report progress on achieving these goals.

Need for global level cooperation:

- It helps to take bold action to address the issues of climate change and air pollution.
- Nowadays, air pollution is an international problem with several impacts on living organisms

Challenges posed by air pollution:

- The role of air pollution in climate change dynamics is a question that must be urgently addressed.
- For example, the importance of air pollution and greenhouse warming vs. aerosol cooling needs to be discussed with air pollution cooling, dominated by aerosol content
- Many open questions still remain, such as the measurement and monitoring of air pollution, including the exploration of new technologies and methods like remote sensing and in-situ observations.
- Air pollution also impacts historic and modern buildings and materials, affecting sites of cultural heritage by damaging structural materials of monuments, statues, and even paintings.
- Air pollution has become a year-round phenomenon particularly in north India which causes health impacts far beyond the seasonal rise of respiratory illnesses.
- It is now the leading risk factor for chronic obstructive lung disease in India, and a major contributor to pneumonia and lung cancer.



- In 2017, air pollution accounted for 12.4 lakh deaths in India, which included 6.7 lakh deaths due to outdoor particulate matter air pollution and 4.8 lakh deaths due to household air pollution.
- According to a report by the **United Nations Environment Programme (UNEP)**, India had the highest share of welfare costs (or a loss of income from labour), of about \$220 billion (about ₹1.4 trillion), in South and South-East Asia of a combined total of \$380 billion from mortality due to air pollution.
- In addition to human lives lost, there's an estimated global cost of \$225 billion in lost labour, and trillions in medical costs, Greenpeace report says.
- Government is keen to ascend the World Bank's "ease of doing business" chart, but images of people walking around Delhi in safety masks do little to attract investment.

Measures needed:

- Short term measures should be accompanied by measures that **increase the forest cover** of the land and provide farmers with an alternative to burning the remains of their crops.
- An innovative approach could be to **use climate change funds to turn farm residues into a resource**, using technological options such as converting them into **biofuels** and **biofertilizers**.
- **Proactive engagements are necessary to persuade and reassure farmers.**
- It is important to find other uses for stubble such as biomass, which may encourage farmers to look for **alternative sources of income**.
- India should at least now give high importance to the **WHO warning about air pollution being the new tobacco**. Sharply escalated, deterrent parking fees can be implemented.
- From an urban development perspective, large cities should reorient their investments to **prioritise public transport, favouring electric mobility**.
- **Incentives** for adoption of **alternate mobility technologies** should be promoted.
- The **World Bank** has said it is keen to enhance its lending portfolio to tackle air pollution, opening a new avenue for this.
- Governments should make the **use of personal vehicles in cities less attractive** through **strict road pricing mechanisms** like **Congestion tax, Green-house Gas tax**
- Need to speed up the journey towards **LPG and solar-powered stoves**.
- **Addressing vehicular emissions** is within India's grasp but requires a multi-pronged approach. It needs to combine the already-proposed tighter emission norms (in form of BS VI), with a push for shared mobility and public transport and adoption of alternate mobility technologies.
- NCAP should take precedence from emerging practices in the country—**pollution cess in Delhi on truck entry, big diesel cars, and diesel fuel sales and the coal cess**—to generate dedicated funds to finance clean air action plan.



- **Tackle road dust by mechanised sweeping and water-sprinkling** but what would be more beneficial is if the sides of the roads could be paved or covered with grass that holds the soil together and stops the production of the dust in the first place.
- Attention to non-technological aspects such as **urban planning, to reduce driving, and to increase cycling, walking, and use of public transport are needed.**

Climate change mitigation should be integral to the urban planning, in this regard, discuss the strategies to be developed to have a sustainable urbanisation and discuss any measures taken by the government to that effect. (250 words)

The hindu

Why this question:

The article highlights the significance of keeping urban planning centric to the climate change.

Key demand of the question:

Explain the significance of considering the climate change factor integral to the urban planning aspect.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief discuss the centrality of climate change aspect to urban planning.

Body:

Explain, in brief, cities contribution to the emissions and need for integrating the climate change in planning of cities.

Suggest on various strategies to have sustainable urbanization transportation, land resource management, green vehicles, green buildings etc.

Elaborate on the measures taken by the government to ensure sustainable cities.

Conclusion:

Conclude with way forward.

Introduction:

Climate change impacts such as increased rainfall intensity, storm surges, and flooding and urban heat island effects are likely to affect many urban systems worldwide. These will impact severely on urban systems and the populations and services they support. For the second time this year, Bihar is submerged. In July, 13 districts in north Bihar were inundated, and now, it's the turn of four other districts, including the capital, Patna.

Body:

Climate change presents a significant challenge for urban systems worldwide. Its effects will likely intensify over the coming decades. Whilst humanity may be able to take collective action to limit the intensity of these effects, scientific evidence indicates that some are already happening and will continue to occur, irrespective of any ongoing mitigation.

Some global good practices:

- In Copenhagen, mayors from Toronto and Berlin spoke about expensive plans to retrofit buildings for energy efficiency and shift their transport infrastructure to greener options.



- Montreal is shifting city logistics to electric vehicles, keeping large trucks confined to centralised terminals.
- The city of Rome has an aggressive plan to ban diesel emissions, encourage sustainable shared mobility including biking and walking, and pursue a green new deal.
- China's Hangzhou already has the largest public bicycle-sharing system and is moving to a smart bus service.
- Hong Kong is ready to harvest super typhoons in new drainage tunnels that will reuse rainwater and grow biodiversity.
- Singapore will put a price on carbon.
- Novo Nordisk, a healthcare company, wants to partner with mayors on its Cities Changing Diabetes programme to "bend the curve" on the public health challenge through better facilities for biking, walking and urban mobility.

Measures taken by the government:

- **National Action Plan on Climate Change (NAPCC).**
- **National Adaptation Fund on Climate Change (NAFCC).**
- **Climate Change Action Programme (CCAP)**
- **International Solar Alliances (ISA)**
- The ambitious goal of generating 175 GW of renewable energy by 2022.
- Atal Mission for Rejuvenation & Urban Transformation (AMRUT), Smart cities.
- FAME Scheme – for E-mobility
- Energy efficiency initiatives
- Leapfrogging from Bharat Stage -IV to Bharat Stage-VI emission norms by April 2020
- India's forest and tree cover has increased by 1 percent as compared to assessment of 2015.
- Schemes like **UJALA** for LED distribution has crossed the number of 320 million while **UJJWALA** for distributing clean cooking stoves to women below poverty line has covered more than 63 million households.
- **State Action Plan on Climate Change (SAPCC)**
- At the C40 summit, Kolkata bagged an award for green mobility.
- Delhi's Chief Minister informed the delegates that the national capital was cutting emissions by inducting 1,000 electric buses, planting trees on a massive scale, and eliminating the use of dangerous industrial chemicals.
- Delhi is also setting up a task force for clean air. These must be the priorities for all cities.

Way Forward

- Investment in R&D is needed to spur innovations in sustainable climate-friendly and climate-proof productivity, and the private sector can help on this.



- Creation of urban policies which focus on both green cover as well as development of urban areas.
- Micro-forests, urban forests, vertical gardens, roof-top gardens and preservation of green spaces in the urban spaces must be taken up at rapid pace.
- All Indian states must conduct a detailed survey of their water bodies, which can serve as an insurance against floods.
- Strict laws against encroachment of the wetlands in the urban areas must be implemented.
- Involvement of the people in decision making on important issues like infrastructure development leads to unbiased and sustainable decision making.
- A high-density, poly-nodal, public-transport oriented urban pattern that would reduce travel distances and encourage non-motorised travel must find favour with India's city planners.
- Specific environmental targets must be built into the urban planning process.
- the new Energy Conservation Building Code should be made mandatory.
- Promoting a green growth model and pushing for radical reforms in urban planning should be the norm.

Conclusion:

It is vital that urban and climate change policies synergise at the local body level and a sustainable growth pattern is adopted on priority. Simultaneously, the resilience of cities, particularly of their poor areas, has to be vastly improved so that they can better manage the impact of climate change.

“The first step towards tackling climate change is to accept the science and create conditions for innovative solutions”. Comment. (250 words)

Livemint

Why this question:

The article explains in what way the projections of future climate are based on scenarios of socio-economic changes.

Key demand of the question:

One has to elucidate upon the fact that the first step towards tackling climate change is to accept the science and create conditions for innovative solutions.

Directive:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

In brief highlight the alarming concerns posed by climate change.

Body:

First discuss the significance of science to handle the ill effects of climate change.

Take hints from the article and explain in what way tackling climate change is to accept the science and create conditions for innovative solutions to be found.

Explain what effect the climate change is having upon the children of future generations who are unknowingly compelled to involve in tackling and dealing with climate change.

Conclusion:

Conclude with way forward.

**Introduction:**

Climate change is a complex problem. It is inextricably linked with society, economics, politics, and people's way of life. More than 190 countries signed the Paris Agreement in 2016, committing to change how they create and use energy in order to lower impacts of carbon and other greenhouse gases on the planet. All over the world, people and organizations are taking action to both lower carbon footprints and find innovative ways to adapt to the effects of climate change.

Body:**Climate change is an immediate issue to be tackled:**

- Global warming above pre-industrial levels has touched about 1 degree Celsius.
- The IPCC 1.5 report basically says, at the current rates at which we are producing greenhouse gases, we are looking at a couple of decades really before what we have available is exhausted.
- At one level, for many people climate change has become an existential problem, a problem that risks undermining the conditions for productive life and therefore a problem that does not override but certainly permeates all kinds of other issues.
- For many others, climate change is a distant problem that is overwhelmed by more immediate issues.
- The rapid change of climate change is likely to exceed the ability of many species to migrate or adjust. Experts predict that one-fourth of Earth's species will be headed for extinction by 2050 if the warming trend continues at its current rate.
- Sea levels have risen between four and eight inches in the past 100 years. Current projections suggest that sea levels could continue to rise between 4 inches and 36 inches over the next 100 years.
- As temperatures rise globally, droughts will become more frequent and more severe, with potentially devastating consequences for agriculture, water supply and human health. This phenomenon has already been observed in some parts of Asia and Africa, where droughts have become longer and more intense.
- Hot temperatures and dry conditions also increase the likelihood of forest fires.

Challenges in addressing climate change:

- **Regional Inequality:**
 - The principle of Common but differentiated responsibilities was proposed to tackle climate change by addressing the regional inequality.
 - However, the indifferent behaviour by the developed countries has led to partial success of many global initiatives. E.g. Kyoto Protocol.
- **Developed Countries not taking responsibility:**
 - Historical emissions and pollution caused due to industrial revolution is not accepted by the industrialized nations.



- Developed nations are unwilling to accept the responsibility and are moving away from global agreements. E.g. USA rejecting the Paris deal.
- **Finance:**
 - Huge amount of funds is required for adaptation and mitigation measures to be adopted.
 - For e.g.: electric mobility, certainly is a green measure, but is actually expensive, in immediate terms, in terms of cost per vehicle kilometre.
 - The cost of shifting into renewable energy is also a fiscal challenge to most countries.
- **Technology:**
 - Many adaptation and mitigation measures need sophisticated technologies and Research and Development which is an impediment to many developing and small island nations.
 - Commercialization of technology in form of Patents, evergreening has made it unaffordable.
- **Increasing use of fossil fuels.**
- **Complex linkages among emissions, concentrations, climate changes, and impacts.**
- **Lack of certainty about the details of future climate change.**
- **Significant time lags in human response systems.**
- **Risks, judgments about risk, and adaptation needs are highly variable across different contexts.**

Way Forward

- The first step in tackling climate change is to accept the science and create conditions for innovative solutions to be found.
- Investment in R&D is needed to spur innovations in sustainable climate-friendly and climate-proof productivity, and the private sector can help on this.
- There should instead be major changes in technological innovation, behaviour, values and governance. This is an unprecedented challenge for humanity.
- Incremental changes along with increasing contributions from renewables and improvements in energy efficiencies would not be sufficient.
- This is the time for the world's leaders to demonstrate that they are ready to go beyond expediency and take the actions needed to avert long-term catastrophe.
- Wealthy nations like the U.S., and those of the EU argued that emissions from developing countries are consistently rising and they need to commit to more serious emission cuts. A consensus needs to be developed at the earliest.
- The immediate up scaling of ambition in the second Commitment period of Kyoto Protocol and its early ratification by all Kyoto Protocol parties would be a step in the right direction.



- Concerning mitigation, distinction enshrined in the Convention between Annex I (Developed) and non-Annex I (developing) Parties must be maintained in accordance with the principles of Equity, CBDR and other provisions of the UN Conventions.
- The 'developing versus developed country' schism needs to be diluted at the earliest and Developed Countries should avoid watering down the CBDR principle envisaged in earlier agreements.

What are green crackers? Are green crackers less polluting and to what extent there is awareness among people about it? Explain. (250 words)

The hindu

Why this question:

Last October, in a landmark judgment, the Supreme Court of India mandated the use of green crackers for Deepavali, prescribing specific norms for the manufacture. This year, for the first time, 'green crackers' have been made available in markets, though the reach has been limited. These are milder avatars of traditional firecrackers in terms of the sound and smoke generated when burnt. Thus making it important for us to have an understanding of what are Green Crackers.

Key demand of the question:

Explain in detail what Green Crackers are and explain their significant contributions to environment in controlling pollution.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In brief define green crackers and highlight the SC judgments in this regard.

Body:

In brief, show the impact of burning crackers on the environment.

Define green crackers and discuss various aspects of green crackers.

Add a note, in brief, on their supplies as of now.

Comment in detail whether green crackers are less polluting or not?

Assess the extent to which there is awareness about the green crackers.

Conclusion:

Conclude with way forward.

Introduction:

Green crackers are low-polluting firecracker within the permitted decibel and emission norms is a green cracker. They are the crackers with reduced emission and decibel level. They are known as 'green' firecrackers because they have a chemical formulation that produces water molecules, which substantially reduces emission levels and absorbs dust. In 2018, while restricting the use of fireworks during all events to an 8-10 pm window, the Supreme Court ordered that only crackers with reduced emission and "green crackers" can be manufactured and sold.

Body:

In its report the CPCB said that due to fireworks on Diwali day, particulate matter 2.5 (tiny particles or droplets in the air that are two and one half microns or less in width, and hinder visibility and adversely affect health) levels go up. It stated when there was less fireworks in 2017, the level had reduced compared to previous years.



The crackers have been named as **Safe Water Releaser (SWAS)**, **Safe Thermite Cracker (STAR)** and **Safe Minimal Aluminium (SAFAL)**. These crackers are available as sparklers, flowerpots, maroons and atom bombs and have been developed by the **National Environmental and Engineering Research Institute (NEERI)**, a **Council of Scientific and Industrial Research (CSIR)** lab.

Pollution levels of Green Crackers:

- **SWAS (Safe Water Releaser)**
 - SWAS crackers eliminates usage of (KNO₃) Potassium nitrate and Sulphur with consequent reduction in particulate matter (30-35%) SO₂ and NO_x.
 - It has matching sound intensity with commercial crackers in the range of 105-110 dB
 - STAR eliminates usage of KNO₃ and S with consequent reduction in particulate matter (35-40%), SO₂ and NO_x. It has matching sound intensity with commercial crackers in the range of 105-110 dB
 - SWAS has been tested for shelf life upto 3 weeks with consistent performance.
- **SAFAL (Safe Minimal Aluminium)**
 - SAFAL has minimal usage of aluminium (only in flash powder for initiation) with consequent significant reduction in particulate matter (35-40 %) compared to commercial crackers.
 - It has matching sound intensity with commercial crackers in the range of 110-115 dB
 - PESO has been approached to analyse and test SWAS/STAR/SAFAL from point of view of safety, stability and other related issues.
 - Also functional prototypes of flower pots for substitution of BaNO₃ (Barium nitrate) by low cost eco-friendly materials have been developed with significant reduction in particulate matter (30-35%).
- **STAR (Safe Thermite Cracker)**
 - STAR has the capability to eliminate the usage of KNO₃ and S with a consequent reduction in particulate matter (35-40 per cent), SO₂ and NO_x.
- Components in firecrackers are replaced with others that are **less dangerous and less harmful to the atmosphere**.
- Broadly, it avoids the use of ash or filler materials and use charcoal as per specifications by **Petroleum and Explosives Safety Organisation (PESO)**.
- The green crackers will be 25-30 per cent cheaper to manufacture and manufacturers would not have to make any changes in their facilities.
- In green crackers the commonly used polluting chemicals like aluminium, barium, potassium nitrate and carbon have either been removed or sharply reduced to slow down the emissions by 15 to 30%.



WHAT ARE 'GREEN CRACKERS'?

Firecrackers that have "less dangerous" and "less harmful" chemicals than conventional ones

Being Developed by
CSIR's National Environmental Engineering Research Institute

Production after they are approved by Petroleum and Explosives Safety Organisation (PESO)

Green Because

- ▶ They have a chemical formulation that produces water molecules
- ▶ This substantially reduces emission level and absorbs dust
- ▶ Is basically a light and sound show that produces lower emissions
- ▶ Promise **30-35% reduction** in particulate matter, nitrous oxide and sulphur oxide

Also In The Works
E-CRACKERS BEING DEVELOPED BY CSIR'S CENTRAL ELECTRONICS ENGINEERING RESEARCH INSTITUTE

Expected to hit the market in 4-5 years*

OTHER INITIATIVES

- Crackers with lower aluminium to reduce emissions substantially
- 'Anar' or flower pot made using eco-friendly material that can reduce particulate matter by 40%
- Bijli crackers that eliminate use of ash as desiccants
- Firecrackers without antimony, lithium, mercury, arsenic and lead as directed by PESO last year

Council of Scientific and Industrial Research

Conclusion:

CSIR-CEERI, being an electronics laboratory, is developing safe and pollution free technology of electronic crackers (E-crackers) to meet latent social aspiration of enjoying fireworks.

What do you understand by 'carbon mineralisation'? How does it help in the fight against climate change? Which are other significant carbon capture and storage methods? Discuss the prospects of CCS. (250 words)

[The hindubusinessline](https://www.thehindubusinessline.com)

Why this question:

The question is amidst the recent coming of newer methods of carbon capture and storage.

Key demand of the question:

One has to elaborate what is carbon mineralisation, Elaborate how it helps in the fight against the climate change. Write other significant carbon capture and storage methods available.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.



Structure of the answer:

Introduction:

Write in brief about the 'Carbon mineralization'.

Body:

Mineralisation' is the decomposition of the chemical compounds in organic matter, by which the nutrients in those compounds are released in soluble inorganic forms that may be available to plants. Carbon sequestration is the process of capture and long-term storage of atmospheric carbon dioxide to mitigate global warming and to avoid dangerous impacts of climate change. The Carbon Capture And Storage (CCS) chain consists of three parts; capturing the carbon dioxide, transporting the carbon dioxide, and securely storing the carbon dioxide emissions, underground in depleted oil and gas fields or deep saline aquifer formations.

Explain significant carbon capture and storage methods.

Conclusion:

Conclude with way ahead.

Introduction:

Carbon mineralization is the process of conversion of carbonaceous material to carbon dioxide. It is the most general function of soil microbial communities that can be affected by exposure to pollutants. The mineralisation of carbon compounds is the fundamental energy-producing process for heterotrophic organisms. The process may result in production of CO₂ or CH₄ (depending on oxygen availability) in secondary production, which is subsequently mineralised, and in residual compounds, which tend to be increasingly resistant to decomposition.

Body:

It is a kind of Carbon capture and storage (CCS) technology which removes carbon dioxide from flue gases for storage in geologic formations or the ocean.

This iterative cascade provides some opportunities for directly manipulating the rate of carbon mineralisation by (i) maintenance of the food web; (ii) selective control of specific functional groups; and (iii) relocation of the organic resources.

Carbon mineralization and fight against climate change:

- Increasing soil carbon offers a range of co-benefits and this would buy us time before other technologies can help us transition to a zero-carbon lifestyle.
- Significant carbon pools on earth are found in the earth's crust, oceans, atmosphere and land-based ecosystems. Soils contain roughly 2,344 Gt (1 gigatonne = 1 billion tonnes) of organic carbon, making this the largest terrestrial pool.
- Increasing Soil Organic Carbon (SOC) through various methods can improve soil health, agricultural yield, food security, water quality, and reduce the need for chemicals.
- Changing agricultural practices to make them more sustainable would not just address carbon mitigation but also improve other planetary boundaries in peril such as fresh water, biodiversity, land use and nitrogen use.

Other CCS methods:

- Researchers have developed a new technology to capture carbon dioxide from a stream of air — virtually at any concentration level — an advance that may pave the way for new strategies to reduce atmospheric greenhouse gas levels.



- **Pre-combustion:** This method is normally applied to coal-gasification combined-cycle power plants. The coal is gasified to produce a synthetic gas made from carbon monoxide and hydrogen. The former is reacted with water to produce CO₂, which is captured, and more hydrogen. The hydrogen can be diverted to a turbine where it can be burned to produce electricity. Alternatively, some of this gas can be bled off to feed hydrogen fuel cells for cars.
- **Post-combustion:** In this method, CO₂ is separated from the flue gas of the power station by bubbling the gas through an absorber column packed with liquid solvents (such as ammonia). In the most widely used system, once the chemicals in the absorber column become saturated, a stream of superheated steam at around 120°C is passed through it. This releases the trapped CO₂, which can then be transported for storage elsewhere.
- **Oxyfuel:** When coal, oil or natural gas is burned in normal air, CO₂ makes up around 3-15% of the waste gas – and separating it out is difficult and energy-intensive. An alternative method is to burn the fuel in pure oxygen. In this environment, virtually all the waste gas will be composed of CO₂ and water vapour. The latter can be condensed out while the former can be piped or transported directly to a storage facility.
- **Green Cover:** Afforestation / Reforestation / Plantation / Agro forestry: Trees are natural sequesters of carbon, they take carbon from atmosphere, utilize it in the process of photosynthesis as well as they store it in the form of biomass or wood.
- **Wetland restoration:** Wetland soil is an important natural carbon pool or sink. Wetlands conserve 14.5 % of the soil carbon found in world. But only 6 % of the world's land is composed of wetland
- **Oceans:** Oceans absorb CO₂ from the atmosphere because the concentration of CO₂ in the atmosphere is greater than that in the oceans. This difference in partial pressure of CO₂ results in the gas being absorbed into the world's oceans.
- **Subterranean injection or Geological sequestration:** Carbon dioxide can be injected into depleted oil and gas reservoirs and other geological features, or can be injected into the deep ocean, this is known as subterranean injection.

Prospects for CCS:

- Momentum for climate action has surged since the Paris Agreement in December, with increased investment in clean, renewable energy and new energy technologies.
- CCS technologies aims to keep climate-warming carbon dioxide out of the atmosphere, acting as a bridge to a lower-carbon future.
- To reach that future, national commitments to reduce emissions and increase public and private funding for research and development could help move CCS forward.
- Along with global deployment of renewable energy, CCS has the potential to cut emissions from fossil-fuelled power sources and energy-intensive industry.
- In addition, the Paris conference saw the launch of a CCS development and deployment roadmap for China, a paper outlining the role of CCS in the climate change mitigation portfolio of a coalition of environmental organizations, and a report that highlights CCS in its call for increased climate action over the next five years.



- Increasing support for carbon pricing from private companies, national governments and international organizations could also support the fledgling CCS industry by using funds collected from putting a price on emissions to help pay for carbon capture and storage, and ultimately making carbon expensive enough to incentivize wider CCS use.
- Another encouraging sign for CCS is the commitment by 20 countries, known as **Mission Innovation**, to double public funding for clean energy research and development over the next five years.

India intends to move away entirely from single-use plastics by 2022, yet the fact is India hasn't had much success with plastic waste regulation despite ambitious policy moves. Discuss in detail the underlying causes of such a situation and suggest solutions. (250 words)

Financialexpress

Why this question:

The article captures a detailed discussion on What does India's plastic regulation provide for, and where does it fall short.

Key demand of the question:

One must debate upon the plastic regulation scenario of the country.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief state some key facts to set the context of the question.

Body:

The answer must detail upon what ails India when it comes to meaningful action on reducing plastic waste.

Explain what does India's plastic regulation provide for, and where does it fall short?

Discuss that India has tried to regulate plastic pollution for at least two decades now. And yet nearly every stakeholder seems ill-prepared. Is regulation the problem, or is it industry and consumers who have simply failed to respond?

Suggest solutions specific to the problems.

Conclusion:

Conclude with way forward.

Introduction:

Govt. of India has laid great emphasis on eradicating single use plastic which has become one of the biggest sources of pollution. During his Independence Day Speech this year Prime Minister Narendra Modi had urged the people to take a pledge on Mahatma Gandhi's 150th Anniversary on 2nd October to make the country free of single use plastic.

Body:

Single Use plastic is a form of plastic that is disposable, which is only used once and then has to be thrown away or recycled. The single-use plastic items include plastic bags, water bottles, soda bottles, straws, plastic plates, cups, most food packaging and coffee stirrers. The single-use plastic products also prevent the spread of infection. Instruments such as syringes, applicators, drug tests, bandages and wraps are often made to be disposable. Also, single-use plastic products have been enlisted in the fight against food waste, keeping food and water fresher for longer and reducing the potential for contamination

**India's policies to curb single-use plastic:**

- The Plastic Waste Management (PWM) Rules, 2016, with specific obligations for every stakeholder in the plastic supply-chain, including the extended producer responsibility (EPR) for producers, importers, brand owners.
- The Solid Waste Management Rules (SWM Rules), 2016, also have provisions for plastic waste, including EPR.
- The Biomedical Waste Management Rules, 2016, mandated phase-out of chlorinated plastic bags, gloves and blood bags within two years.
- Then there are state regulations banning single-use plastics (SUP).
- **Odisha** has defined SUP as polythene carry-bags, bottled water of less than 200ml, disposable cutlery made of thermocol and plastics and decorative materials (flower and the likes) made of thermocol.
- **UP** has excluded 200ml plastic water bottles and decorative materials, and included disposable tumblers, in the definition of SUP.
- **Tamil Nadu** has defined SUP as “use and throw plastics,” which include plastic carry-bags, flags, plastic sheets used for food wrapping and spreading on the dining table, plastic plates, plastic-coated cups, tumblers, water pouches and packets.

Shortcomings in the above regulations:

- The problem is with regulations, and with consumer awareness and industry's status-quo approach.
- There is a difference in EPR provisions under SWM Rules and PWM Rules.
- SWM Rules say that manufacturers/brand-owners shall provide financial assistance to local authorities for establishing waste management systems to fulfil their EPR.
- PWM Rules, however, don't mention the financial contribution to local authorities.
- Instead, these direct manufacturers/brand-owners to collect waste through their distribution channel or the local body concerned.
- **Implementation** of the Biomedical Waste Management Rules is still lax.
- States have **different definitions** of what constitutes SUP.
- **Consumer apathy** is at the core of the problem. We all talk about plastic pollution, but end up using polythene bags. We crib about dumpsites, but litter ourselves, and waste segregation is still to take off meaningfully.
- **No company in India** has shown leadership in dealing with plastic pollution.
- our approach to rule-making is command-and-control or ruling with a stick, to be precise. The experience of the past 20 years should have made it clear that regulations and penalties are not sufficient to eliminate the use of SUP.

Solutions needed:



- Proper plastic waste management will only happen if there is good municipal waste management. EPR provisions will have to be designed for this reality.
- we must be more focused on **recycling** than bans, given almost 40% of the plastic waste generated in the country remains uncollected
- To increase recycling, we must **improve segregation of waste at source and improve the collection and transportation of segregated wastes.**
- Multi-Layered Plastics contain several polymers, they can't be recycled. At best, they can be incinerated in cement plants, used as a refuse-derived fuel (RFD), used in road construction or for making down-cycled products.
- plastic waste management can't be treated as separate from solid waste management.
- Along with banning thin plastic carry-bags, the government should also promote options like textile or paper bags.
- A combination of economic and regulatory tools is required to incentivise quick entry of alternatives in a viable manner.

Global practices to tackle single-use plastic:

- Globally, plastic waste regulation is about **better segregation, collection, and then disposal.**
- The focus is not so much on the end-of-the-life reuse/recycling. This is the reason why, globally, **more than 90% of the plastics are not recycled.**
- Sweden, which is considered to have one of the best plastic waste management systems. Its plastic recycling rate is meagre, as it burns most of its plastic waste to generate electricity.
- Other developed countries, like the US, have outsourced plastic pollution. They consume a lot and then ship the waste to developing countries like China, India and now Africa.

Way forward:

- Design for recycling. Instead of using multiple polymers in packaging like multilayered plastics, they should be shifting to single polymers that will aide recycling. This can be done quickly.
- Reduce the weight of packaging and the need for packaging. There is a vast scope to reduce plastic consumption here. This is again a short- to medium-term goal.
- Start developing, substituting plastic with alternatives. This is something that they need to start working immediately, but this is a medium- to long-term goal.
- Start working closely with the local authorities to ensure littering is minimised and the collection of segregated plastics is maximised. This will reduce visible pollution, enhance recycling and end-of-life use.
- The plastic life cycle eventually is "from oil to oil" or "from oil to ash (incineration)." So, we will have to develop state-of-the-art facilities for energy recovery and conversion.



Disaster and disaster management.

Extreme weather like long dry spells, accompanied with more intense rainfall concentrated over fewer days, are becoming the norm. In this context critically evaluate how Climate change and poor urban planning are jeopardizing lives of people. (250 words)

Hindustantimes

Why this question:

The article discusses how extreme rainfall events are on the rise in the country. Long dry spells, accompanied with more intense rainfall concentrated over fewer days, are becoming the norm.

Key demand of the question:

One has to explain the causative factors and the relationship between Climate change and poor urban planning and how it can be addressed.

Directive:

Critically evaluate – When asked to evaluate, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgment.

Structure of the answer:

Introduction:

In brief discuss the recent extreme weather events in short.

Body:

Explain in detail the causative factors of these extreme weather events.

Discuss with suitable case studies – floods, dry spells etc.

Explain that the floods, especially in urban India, are taking place not just due to climate change, but also inadequate urban planning, which has not paid attention to natural water bodies and has forgotten the “art of drainage”.

Expand on the linkages between urban planning and its correlation with extreme events of weather.

Conclusion:

Conclude with way forward.

Introduction:

Climate change impacts such as increased rainfall intensity, storm surges, and flooding and urban heat island effects are likely to affect many urban systems worldwide. These will impact severely on urban systems and the populations and services they support. For the second time this year, Bihar is submerged. In July, 13 districts in north Bihar were inundated, and now, it’s the turn of four other districts, including the capital, Patna.

Body:

Climate change presents a significant challenge for urban systems worldwide. Its effects will likely intensify over the coming decades. Whilst humanity may be able to take collective action to limit the intensity of these effects, scientific evidence indicates that some are already happening and will continue to occur, irrespective of any ongoing mitigation.

Climate change and poor urban planning effects:

- Urban sprawl, combined with unsustainable transportation planning and energy guzzling building practices, has been the main source for the GHG emission.
- This has aggravated climate effects like **urban floods, urban heat islands, reduced ground water table levels etc.**



- The floods, especially in urban India, are taking place not just due to climate change, but also inadequate urban planning, which has not paid attention to natural water bodies and has forgotten the “art of drainage”.
- Urban water bodies, such as wetlands, provide crucial services like groundwater recharge (which is helpful during water-scarce summers, the other face of climate change) and flood management.
- Unfortunately, in India, water bodies are rarely recorded under municipal laws.
- Planners see only land, not water, and the builder lobby just encroaches on them.
- A study by the non-profit, Centre for Science and Environment, shows that Chennai, which faced devastating floods in 2015, had 600 water bodies in the 1980s; a master plan published in 2008 said only a fraction of the lakes in the city were in healthy condition.
- The rapid unplanned urbanization has led to chopping down of urban forest areas inducing climate imbalance and effects of local climate regulation.
- Concretized buildings and pavements, high usage of glass in the buildings has led to compounding of heat leading to urban heat islands.
- Poor urban plans result in rising slums in the cities where basic amenities are lacking and are the first to be affected in case of urban floods and famine.
- All these have lead to loss of lives in the urban cities in large scale, economic losses as well.

Challenges in addressing climate change:

- **Regional Inequality:**
 - The principle of Common but differentiated responsibilities was proposed to tackle climate change by addressing the regional inequality.
 - However, the indifferent behaviour by the developed countries has led to partial success of many global initiatives. Eg. Kyoto Protocol.
- **Developed Countries not taking responsibility:**
 - Historical emissions and pollution caused due to industrial revolution is not accepted by the industrialized nations.
 - Developed nations are unwilling to accept the responsibility and are moving away from global agreements. Eg. USA rejecting the Paris deal.
- **Finance:**
 - Huge amount of funds are required for adaptation and mitigation measures to be adopted.
 - For eg: electric mobility, certainly is a green measure, but is actually expensive, in immediate terms, in terms of cost per vehicle kilometre.
 - The cost of shifting into renewable energy is also a fiscal challenge to most countries.
- **Technology:**



- Many adaptation and mitigation measures need sophisticated technologies and Research and Development which is an impediment to many developing and small island nations.
- Commercialization of technology in form of Patents, evergreening has made it unaffordable.
- **Increasing use of fossil fuels.**
- **Complex linkages among emissions, concentrations, climate changes, and impacts.**
- **Lack of certainty about the details of future climate change.**
- **Significant time lags in human response systems.**
- **Risks, judgments about risk, and adaptation needs are highly variable across different contexts.**

Way Forward

- Investment in R&D is needed to spur innovations in sustainable climate-friendly and climate-proof productivity, and the private sector can help on this.
- Creation of urban policies which focus on both green cover as well as development of urban areas.
- Micro-forests, urban forests, vertical gardens, roof-top gardens and preservation of green spaces in the urban spaces must be taken up at rapid pace.
- All Indian states must conduct a detailed survey of their water bodies, which can serve as an insurance against floods.
- Strict laws against encroachment of the wetlands in the urban areas must be implemented.
- Involvement of the people in decision making on important issues like infrastructure development leads to unbiased and sustainable decision making.
- A high-density, poly-nodal, public-transport oriented urban pattern that would reduce travel distances and encourage non-motorised travel must find favour with India's city planners.
- Specific environmental targets must be built into the urban planning process.
- the new Energy Conservation Building Code should be made mandatory.
- Promoting a green growth model and pushing for radical reforms in urban planning should be the norm.

Conclusion:

It is vital that urban and climate change policies synergise at the local body level and a sustainable growth pattern is adopted on priority. Simultaneously, the resilience of cities, particularly of their poor areas, has to be vastly improved so that they can better manage the impact of climate change.



States of Bihar and Uttar Pradesh face floods frequently because of various natural and manmade reasons. Analyse floods with Patna as a case study in mind. (250 words)

The hindu

Why this question:

Nearly 110 people died in rain-related incidents across the country in the past four days, with Uttar Pradesh reporting the maximum deaths, while

Incessant rainfall in Bihar has badly hit normal life, with almost all areas of capital city Patna under knee-deep waters and people struggling to meet their daily needs.

demand of the question:

One has to explain the causative factors of the flood situation in the states of Bihar and UP.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Narrate the ongoing situation in these states.

Body:

In brief discuss the flood situation in Bihar and UP.

Explain the causative factors of the floods – discuss both manmade and natural causes of it.

Discuss using the case study of Patna; describe specific issues that have left the situation grim.

Conclusion:

Conclude with solutions to address the situation both short term and long term.

Introduction:

Several parts of Bihar and Uttar Pradesh were reeling from floods on Monday following continuing showers over the past few days. Incessant precipitation has deluged many districts, causing havoc, snapping communication lines and claiming several lives.

Body:

The water footprint is a measure of humanity's appropriation of fresh water in volumes of water consumed and/or polluted. It helps us understand for what purposes our limited freshwater resources are being consumed and polluted.

Factors causing floods:

Natural factors:

- **More than average rainfall:**
 - India's northern states have received above-average rainfall on account of sustained low-pressure conditions.

Anthropogenic factors:

- **Uncontrolled urbanization:**
 - Unregulated construction in Patna has been blamed for the situation the city has found itself in over the last few days.
 - The linear development which has been along major road networks, has completely ignored the varying and ecologically sensitive landscape.



- Substantial portions of revenue lands in the State are wetlands and forests, which has resulted in a shortage of buildable land parcels.
- This in turn is creating huge pressure on these ecologically fragile areas for conversion to government-supported infrastructure projects as well as private profit-making enterprises.
- **Poor planning:**
 - The State Action Plans on Climate Change elucidate measures for disaster-risk reduction in the wake of an increasing frequency of heavy rainfall in turn leading to more flooding and landslides.
 - Though plans and laws such as Integrated Water Resources Management or Coastal Regulation Zone Notification hold key solutions to natural disasters that are linked to water management, most of them are not implemented or followed to the letter.
 - A lack of holistic and coordinated measures within planning departments has resulted in further problems
 - **Roads, railway lines and housing colonies** being laid and built without regard for natural water ways, but with formal planning permission.
- **Dilution of laws:**
 - The need of the hour is for a review and revision of building bye-laws for urban and rural areas in accordance with bettering environmental sustainability.
- **Land use:**
 - Injudicious use of land is responsible for making states more prone to floods and landslides.
 - However, other factors such as a change in land use patterns and climate change could have contributed to the situation on the ground.
- **Deforestation:**
 - Unfettered development activity had increased the chances of landslides, a major cause of casualties during the floods.
- **Extra: Mismanagement of dams:**
 - *For dams to truly tame floods, experts say dam reservoirs need to be relatively empty before the onset of rain. This was not the case in many states.*
 - *Local officials have been blamed for exacerbating the situation by failing to gradually open the dams dotting the state's complex river network, waiting instead until they were already full before unleashing the excess water.*
 - *More flooding was caused by emergency releases from dams that were full. Despite forecasts of more rain, there were no controlled releases.*
 - **World Bank analysis** while preparing the National Hydrology Project (NHP) in 2015 showed that although weather forecasts are more accurate now, dam managers (especially bureaucrats) are reluctant to authorise advance controlled releases.



Measures needed for flood management:

- The dire need is for **watershed-based master planning and development legislated guidelines** for each major river basin, especially those that impact densely populated settlements.
- There must be a demarcation of ecologically sensitive zones using existing village survey maps and public participation.
- There must be clear land use plan for these zones specifying flood plains, protected forest areas, agricultural and plantation zones, with details of the types of crops, building usages permitted and the density of buildings permitted.
- To compensate owners in non-buildable areas, there must be strategies such as Transfer of Development Rights to buildable zones in cities.
- The master plan should focus on permitting only ecologically sensitive building strategies for these areas by proposing new construction techniques.
- Controlled development can be proposed using building height rules, floor area ratio control, and restrictions on cutting and filling natural land.
- Strategies to make sure that all infrastructure projects are carried out in a scientific manner with strict scrutiny must be specified.
- This should include roads built on difficult terrain and all public infrastructure projects in wetlands and the High Ranges.
- Copenhagen in Denmark, which faces a similar problem of repeated flooding, has come up with active cloudburst responsive planning as a process to develop the city in line with climate change needs.

Conclusion:

A complete overhaul of processes to hire technical expertise which allows access to necessary skills, and with a long-term vision of capacity building of local agencies, is the way forward.

Mangroves can act as first line of defence against coastal flooding. Elucidate. (250 words)

The hindu

Why this question:

The article discusses a case study dealing with significant contributions of mangroves to coastal flooding.

Key demand of the question:

One has to explain the importance of Mangroves as a strong mechanism to prevent and manage the issue of coastal flooding.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In brief state the recent coastal flooding witnessed by the Indian states like Kerala and Karnataka.

**Body:**

First explain the causative factors of coastal flooding.

Discuss the need to manage these floods; their impact.

Explain the role played by Mangroves – what are mangroves? Advantages and in what way they act as natural seawall.

Illustrate with suitable examples to justify better.

Conclusion:

Conclude with way forward.

Introduction:

Mangroves are salt tolerant trees, also called **halophytes**, which survive high salinity, tidal regimes, strong wind velocity, high temperature and muddy anaerobic soil – a combination of conditions hostile for other plants. The mangrove ecosystems constitute a symbiotic link or bridge between terrestrial and marine ecosystems. They are found in the inter-tidal zones of sheltered shore, estuaries, creeks, backwaters, lagoons, marshes and mud-flats.

Body:

Mangroves act as first line of defence against coastal flooding:

- Mangroves are to a coastal area what rain forests are to the Western Ghats.
- They are extremely important in maintaining a peaceful coastal ecosystem, as they form a **natural seawall**.
- Mangrove plants have (additional) special roots such as prop roots, pneumatophores which help to impede water flow and thereby enhance the deposition of sediment in areas (where it is already occurring), stabilize the coastal shores, provide breeding ground for fishes.
- It prevents soil erosion, protects the coastline and has its own ecological natural habitat. The floods of these two years made us think of what we could do to check flood waters and strengthen our coastline.
- Mangroves moderate monsoonal tidal floods and reduce inundation of coastal lowlands.
- They protect coastal lands from tsunami, hurricanes and floods.

Other significance:

- Mangroves are a rich zone of biodiversity, as they are the main breeding grounds of brackish water fish species.
- The trees offer sanctuary to a number of bird species.
- They play an active role in carbon sequestration
- Mangroves enhance natural recycling of nutrients.
- Mangrove supports numerous flora, avifauna and wild life.
- Provide a safe and favourable environment for breeding, spawning, rearing of several fishes.
- They supply timber, fire wood, medicinal plants and edible plants to local people.
- They provide numerous employment opportunities to local communities and augment their livelihood.

**Scientific management measures for conservation of Mangroves:**

- The mangrove species under grave threat must be included in **the Red List of the International Union for Conservation of Nature (IUCN)**.
- Suitable sites are to be identified for planting mangrove species. **Mangrove nursery banks** should be developed for propagation purposes.
- **Environmental monitoring in the existing mangrove** areas should be taken up systematically and periodically.
- Various threats to the mangrove resources and their root causes should be identified, and earnest measures should be taken to eliminate those causes.
- The **participation of the local community** should be made compulsory for conservation and management.
- **Floristic survey of mangroves** along the coast is to be taken up to prepare biodiversity atlas for mangroves.
- Potential areas are to be identified for implementing the management action plan for mangroves, especially in cyclone prone areas.
- Coastal industries and private owners need to be persuaded to actively participate in protecting and developing mangrove biodiversity.
- The forest department officials should be trained on taxonomy, biology and ecology of mangrove species.

Way forward:

- The impact of environmental and human interference on marine flora and fauna needs to be assessed.
- The traditional rights of coastal communities to use the natural resources in their surrounding natural habitats for their livelihood should also be recognised on priority basis.

Linkages between development and spread of extremism.

Discuss the significance of community-based natural resource management. Also, analyse to what extent it can aid in better provisioning of ecological services of a region. (250 words)

[Downtoearth](https://www.insightsias.com/downtoearth)

Introduction:

Community-based natural resource management (CBNRM) is a **people-centered approach to the integration of conservation of the natural resource base (water, soil, trees and local biodiversity) and development to overcome poverty, hunger and disease**. CBNRM was affirmed by the 1980 World Conservation Strategy of the International Union for Conservation of Nature (IUCN), and the Earth Summit's 1992 Statement of Forest Principles and the Convention on Biological Diversity.

Body:

**Significance of CBNRM:**

- **Multi-stakeholder collaboration** that involves all participants, from communities, to government, to NGOs, and promotes coordination among them.
- **Conflict management mechanisms** support processes to manage natural resource conflicts among stakeholders.
- **Participatory action research** collaborative fact-finding and analysis generates a mutually agreed upon perspective for action.
- Strong local organizations, such as forest-farmer groups and inter-village networks are built from the bottom-up.
- **Livelihood improvement and environmental services** work to sustain environmental conservation by linking it to farm and community enterprises.
- **Provide opportunities for reinvestment** by linking upland environmental services to lowland and urban communities.
- Policy support and law enforcement are essential to curbing illegal encroachment leading to ecosystem degradation.
- Collaborative management plans – build shared responsibilities and decision-making among all stakeholders through joint management plans of natural resources. This leads to healthy communities and ecosystems.
- **Participatory monitoring and evaluation** – promote learning, trust and accountability through monitoring of the natural resource base and application of the management plan.
- Gender and social justice in access to, and control of, natural resources is the ultimate measure of the sustainability of community-based natural resource management efforts.

CBNRM and provisioning of ecological services of a region:

- Most community-based natural resource management programmes may have only limited success at achieving both conservation and human development goals.
- But the concept appears to be the best opportunity for countries like India to achieve these two outcomes of conservation and human development goals.
- The most important part of the approach is that user rights are transferred from central government to local communities.
- The model is being increasingly promoted as a conservation tool and has become the dominant approach in natural resource conservation worldwide.
- It can help the country retain its place as one of the most famous and profitable wildlife tourism destinations in the world. And it can also contribute to other economic sectors and alleviate rural poverty.

Way forward:

- Awareness on environmental degradation, effects of climate change and possible peoples' collective actions to address these imminent challenges will be crucial, especially for the young generation in schools and colleges.



- Valuing local people's indigenous knowledge systems and practices will be the first step to prepare local hill communities for collective actions to restore and manage the already degraded and fragile hill ecosystems.
- Massive plantation drives ensuring new plantations of grass, shrubs and trees species suitable to the local agro-ecology and funded by the forest department, power companies and other development actors like NGOs/donor agencies.
- Revival and strengthening of village institutions like Van Panchayats, Youth clubs, Women's Groups/Collectives, Farmers' Collectives etc, will be important to ensure the decentralised conservation and management of common property resources and forest.
- Conscious and sustainable use and management of land, water and forest resources by local hill communities, ensuring natural regeneration processes, participatory planning, management and maintenance of natural resources will be crucial. Community level rules/bye-laws and enforcement mechanisms for sustainable management of natural resources will be useful in the long run.
- More collaborations and partnerships will be required among local communities, local self-governance bodies, government, academicians, universities, non-profits, Corporate Social responsibility Foundations, Himalayan Mountain Forum, social movements and networks and the larger civil society are needed to ensure community-based natural resource management and better provisioning of ecological services for the hill communities.

Conclusion:

Conservation of local areas by promoting the community has been highlighted by various instances such as **IUCN's Policy Statement on Sustainable Use of Wild Living Resources in 2000**, and **the Convention on Biological Diversity's 2004 Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity**. Involving communities living in and around natural resource-rich areas in the management and use of these resources is an effective tool of conservation that has been recognised across the world.

Role of external state and non-state actors in creating challenges to internal security.

What should be the extents of focus if India desires to accomplish the goal of making a place for itself amongst the top 50, in the Ease of Doing Business Index by 2020?

Discuss the possible challenges it can face. Suggest solutions to the same. (250 words)

[Indianexpress](#)

Introduction:

India has secured 63rd position out of 190 countries in World Bank's Ease of Doing Business Report 2019 which is 14 places up since the last report. The ranking comes when the leading financing institutions including RBI, World Bank and IMF are slashing country's growth forecasts. In 2014, India was ranked 142 among 190 countries. As compared to 2018, India moved up 14 places in the ranking mainly due to several reforms in the trade and commerce sector.

Body:



India has also been placed on the list of economies with the most notable improvements on this index for the third year in a row. Further, this jump in the ranking, while it comes at a time when economic activity has slowed down sharply, moves India closer towards the target of being in the top 50 economies on this index.

Reasons for improved ranking:

- India's performance over the past year can be traced to significant gains made on four parameters, namely, resolving insolvency, dealing with construction permits, trading across borders, and registering property.
- On resolving insolvency, where India has seen the biggest gain this year, its performance has improved on both the time taken for the insolvency process to culminate, which has fallen from 4.3 years to 1.6 years, and on the recovery rate, which has risen from 26.5 to 71.6 cents on the dollar.
- Introduction of GST has made registration process faster; World Bank in its report had specifically mentioned Mumbai and Delhi.
- Implementation of the single-window clearance system in Delhi and the online building permit approval system in Mumbai. India has also streamlined and centralized its construction permitting process.
- India has also decreased border and documentary compliance time for both exports and imports.
- Sustained business reforms over the past several years.
- India conducted four reforms in the 12-month period to May 1. Among other improvements, India made the process of obtaining a building permit more efficient.
- Importing and exporting also became easier for companies with the creation of a single electronic platform for trade stakeholders, upgrades to port infrastructure and improvements to electronic submission of documents.

Challenges faced:

- India still lags in areas such as enforcing contracts (163rd) and registering property (154th).
- It takes 58 days and costs on average 7.8% of a property's value to register it, longer and at greater cost than among OECD high-income economies.
- It takes 1,445 days for a company to resolve a commercial dispute through a local first-instance court, almost three times the average time in OECD high-income economies.
- It takes approximately a month to start a business in India while the OECD average is 12 days. Though some states like Telangana have eased up the procedures for starting a business, this is yet to be achieved on a pan India basis.
- The procedures to secure permits are rather cumbersome and involve permissions to be sought from various departments.
- The implementation efficiency of Insolvency and Bankruptcy code is yet to be proven.



- Though India has seen a modest improvement in enforcing contracts, it now takes longer time than it did 15 years ago. The absence of effective means for enforcing contracts impedes growth and development and is a disincentive for the private sector.
- When the domestic market is sluggish, it is important that foreign trade is boosted.
- India's largest urban agglomerations, Mumbai and Delhi cannot host the kind of large factories to generate adequate employment. The procedural reforms have not yet reached the hinterland.
- Legislative roadblocks still exist for Land Acquisition.
- A plan for the industrial park in Gujarat with Singapore has been abandoned due to issues of land acquisition.
- Difficulty in cutting the red tape erodes the trust of investors and impedes the prospects of small businesses.
- Lack of coordination among different government ministries and departments, Central and State governments.

Measures needed to break into the top-50 rankings:

- India has significant room for improvisation in almost all the sub-indices.
- India fares among the best in access to credit in the South Asian region. Access to credit should be assured for small businesses and rural entrepreneurs through penetration of formal banking channels into rural areas.
- Effective implementation of reforms like **GST, Insolvency and Bankruptcy code** is needed. The limit of 180 days prescribed in Insolvency and Bankruptcy code should be pertained to.
- Governments should be proactive in obtaining regular feedback about the implementation and initiating the changes accordingly.
- States can work towards providing a **robust online system for registering property**.
- **Digitising land records, improving titling and streamlining procedures for transfer of property** should be taken up.
- Foreign trade needs to be boosted by cutting red tape and reducing transaction costs.
- A fair judicial and executive system need to be in place to achieve the confidence of domestic and foreign investors.
- Fast track commercial courts, paper-less courts need to be set up to speed up the judicial processes.
- Reforms should not be restricted to Mumbai and Delhi but should be implemented in the hinterland as well.
- Create awareness about the reforms and procedures of institutional arbitration.
- Labour compliances need to be eased.
- Bureaucracy needs to be well trained and should try to come out of its popular mindset of being lax and indifferent.



- In the spirit of cooperative and competitive federalism, all the states should initiate the best and proven practices for ease of doing business.
- The government's assessment of states for implementation of Business Reforms Action Plan is a step in the right direction and helps to reinforce the idea of competitive federalism.

Conclusion:

In 2015, the government's goal was to join the 50 top economies on the ease of doing business ranking by 2020. While the competition to move up the ladder would increase and become much tougher, India is on track to be within top 50 of the Ease of Doing business in the next year or two. And to come under 25 or below 50, the government needs to announce and start implementing next set of ambitious reforms now, as these reforms takes a few years to be realized on the ground.



INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION

SECURE SYNOPSIS

MAINS 2020

GS-III

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Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

Use of trade barriers in the name of Fair trade is often just an excuse to raise more protectionist barriers to serve domestic special interest groups, do you agree? Justify your opinion with suitable examples. (250 words).

Introduction:

Free trade focuses on the reduction of barriers and policies that favour certain countries or industries. Fair trade, however, favours the rights of workers, improved working conditions and seeks to eliminate pay discrepancies from country to country. Free trade, which enjoys almost unanimous support among economists, has come under severe attack from politicians across the world.

Body:

Free trade policy is a trade policy that does not restrict imports or exports; it can also be understood as the free market idea applied to international trade.

Trade barriers raised in name of fair trade:

- Tariffs and other trade barriers are extremely popular among politicians. This can be attributed to the misconception that trade policy must be judged based on what good it does to a country's producers rather than consumers.
- The protectionist politician's argument is that increasing tariffs on foreign goods protects domestic industries from unfair trade practices adopted by foreign governments.
- U.S. President Donald Trump has accused China of ripping off the U.S. by, among other things, imposing high tariffs on American goods that are imported into China.
- China has artificially lowering the value of the yuan against the U.S. dollar in order to encourage Chinese exports.
- China has adopted domestic policies that favour local Chinese companies over American ones. Retaliatory tariffs, it is believed, will help level the playing field and ensure "fair trade".
- Another economic statistic that is misused to gather support for protectionist trade policies is the trade deficit.
- A trade deficit is seen as a bad thing since it indicates that the value of a country's imports is greater than the value of its exports.
- But economists such as Milton Friedman have argued against the view that a country loses wealth when it experiences a trade deficit.
- A trade deficit or surplus merely shows that people in different countries prefer to buy different things from one another.

Benefits of free trade and removal of trade barriers:

- The case for free trade does not depend simply on the condition that all countries must engage in "fair trade" practices.
- Trade does not have to be "fair" for countries to benefit from it.



- Competition between producers is usually considered good because, even though it could cause some of them to lose out, it benefits consumers who can buy cheaper and better goods.
- In fact, a country that drops all trade barriers on its side can benefit from such trade liberalisation even when other countries refuse to do the same.
- As the economist Paul Krugman wrote, “The economist’s case for free trade is essentially a unilateral case: A country serves its own interests by pursuing free trade regardless of what other countries may do”.
- This is because countries that remove trade barriers unilaterally, like Hong Kong and Singapore did, benefit their consumers, whose standard of living is improved greatly by access to foreign goods.
- By the same token, a country that raises trade barriers works against the interests of its own consumers.
- Of course, if all countries tore down their respective trade barriers, the world would be a richer place as goods can freely move around.
- But in the meantime, unilateral free trade can at least benefit consumers in countries that decide to fully adopt it.

Conclusion:

Fair trade is often just an excuse to raise more protectionist barriers to serve domestic special interest groups. The world would be a richer place if leaders chose free trade over “fair trade”.

Ratings agency Moody’s has lowered India’s outlook from stable to negative recently. How do such agencies assign these ratings? What do these ratings mean for India? Critically analyse.(250 words)

[Indianexpress](https://www.indianexpress.com)

Why this question:

The article brings out the discussion of recently accredited credit rating by Moody’s to India and the detailed analysis of the same.

Key demand of the question:

Explain what credit rating is, what is the significance of it, what has been the impact of Moody’s credit rating on India and provide for a detailed analysis.

Directive:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgment.

Structure of the answer:

Introduction:

First highlight the fact that Ratings agency Moody’s has lowered India’s outlook from stable to negative.

Body:

Discuss first what credit rating is – A credit rating is an assessment of the creditworthiness of a borrower in general terms or with respect to a particular debt or financial obligation.

A credit rating can be assigned to any entity that seeks to borrow money — an individual, corporation, state or provincial authority, or sovereign government.

Explain the significance of credit rating agencies, their role.



Discuss the concerned issues with credit rating agencies.

Conclusion:

Conclude with what should be the way forward.

Introduction:

Moody's has lowered India's credit rating outlook from **stable to negative** because of what it has assessed as risks to economic growth, prospects of a more entrenched slowdown, weak job creation, and a credit squeeze being faced by Non-Banking Finance Companies. Moody's India rating is a notch higher than that of Standard & Poor's (S&P). Whether it is Moody's or its peer Standard and Poor's (S&P), Indian policymakers have often criticised the credit ratings assigned by these agencies.

Body:

Methodology of assignment of ratings:

- Credit ratings agencies rate on a scale the financials and business models of companies, as well as economic management by sovereign governments, after analysing official and other data and interacting with government officials, business leaders, and economists.
- These agencies then rate instruments such as bonds, debentures, commercial papers, deposits, and other debt offerings of companies or governments to help investors make informed decisions.
- From a company's or a government's perspective, a better rating helps raise funds at a cheaper rate.
- The agencies do this on a continuous basis, either upgrading or downgrading the instrument based on performance, prospects, or events likely to have an impact on the balance sheet of a company or on the fiscal position of a government or a sub-sovereign entity.

Significance of the ratings for India:

- The decision to change the outlook to negative reflects increasing risks that economic growth will remain materially lower than in the past.
- It partly reflects the lower government and policy effectiveness at addressing long-standing economic and institutional weaknesses than Moody's had previously estimated, leading to a gradual rise in the debt burden from already high levels.
- Reduction in outlook is the first step towards an investment downgrade, as India is now just a notch above the investment grade country rating.
- An actual downgrade in country ratings can lead to massive foreign fund outflows.

Projections made by Moody's:

- **Governmental measures:**
 - The government pushed its expenditure on capital projects.
 - In October 2019, it gave away corporate tax concessions amounting to a whopping ₹1.45 lakh crore.
 - Even with the boost from the dividend payout of ₹1.76 lakh crore from the Reserve Bank of India, the budget arithmetic is optimistic.



- **Fiscal deficit:**

- It now appears certain that the government will miss the fiscal deficit target of 3.3% of GDP.
- Moody's has projected that the deficit will slip to 3.7% of GDP this fiscal year Of 2019-2020.
- Rating agencies are ultra-sensitive to fiscal deficit overruns but the positive factor here is that India's borrowings are wholly domestic.

- **External debt to GDP:**

- It is just 20% but the ratings do have an impact on investor sentiment.

Concerns:

- The growth slowdown and its effects on the fiscal deficit and borrowings are the main worries.
- Tax revenue growth is nowhere near budgeted levels.
- With the slowdown extending into the third quarter of 2019, it is clear that tax revenues will undershoot by a wide margin.
- The government has been forced to spend more to give a leg up to the economy

Government's views of the ratings:

- Noting Moody's concerns, the Finance Ministry said that India continues to be among the fastest growing major economies in the world, and India's relative standing remains unaffected.
- The Government said it has undertaken series of financial sector and other reforms to strengthen the economy as a whole.
- It has also proactively taken policy decisions in response to the global slowdown. These measures would lead to a positive outlook on India and would attract capital flows and stimulate investments.
- The fundamentals of the economy remain quite robust with inflation under check and bond yields low. India continues to offer strong prospects of growth in near and medium term.

Measures needed to boost the economy:

- The government needs to press the pedal harder on reforms and in debugging GST.
- It may also have little option than to go big on disinvestment in the remaining 4 months of this fiscal.
- The target of ₹1.05 lakh crore that it set for itself in the budget has to be bested by a wide margin if the fiscal deficit slippage is to be contained.
- The supportive measures announced in the last 2 months should be closely monitored for implementation.



With the manufacturing sector in India unable to provide employment opportunities to the youth, the digital platforms provide work to the growing demographic of youth in the country. In this context discuss the need for regulating them and the concerns associated with excessive regulation of these platforms.(250 words)

The hindu

Why this question:

The question is in the context of Karnataka State government's move to frame guidelines for workers of digital platforms like Uber, Ola, Zomato, Swiggy, UrbanClap, etc.

Key demand of the question:

One must highlight the significance of digital platforms and gig economy that they are creating and the optimal methods of regulating them.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief narrate the context of the question.

Body:

Explain first the Importance of digital platforms.

Discuss the significance of the move taken by the govt. of Karnataka; The move to frame the guidelines is to ensure that all relevant labour benefits are available to even those working in the 'gig economy'. The Karnataka government's move to add benefits can provide a degree of public welfare assistance to a significant and growing workforce in India.

Then discuss in detail the concerns associated.

Conclusion:

Conclude that while the government has the responsibility of ensuring social stability for all, any move in this direction must not create hurdles for the businesses. This will lead to loss of employment which in itself is a way to social security. The government needs to balance the views of all stakeholders.

Introduction:

Karnataka State government recently announced that it will work towards framing guidelines for workers of digital platforms like Uber, Ola, Zomato, Swiggy and UrbanClap, to ensure all relevant labour benefits for those working in the 'gig economy'. A gig economy is a work environment where organizations hire temporary workers or freelancers instead of full-time long-term employees. Globally, growth in freelancers is expected to be one of the most significant employment related trends over the next couple of decades. In India too, the signs of freelancing is becoming increasingly relevant and attracting professionals

Body:

Reasons for growth in Gig Economy jobs:

- Governments now actively acknowledge that platforms provide work to the growing demographic of youth in the country.
- At the moment, the manufacturing sector in India is unable to provide employment opportunities to the youth.
- There is thus a mismatch between education and jobs skills in the market.



- Governments have also been unable to create viable public work schemes in urban areas for those continuously migrating into cities and towns.
- Private tech, however, has been able to do this, and the government seems to be aware of its potential.

Concerns posed by Gig economy:

- It is making the work environment uncertain for the workers
- No labour welfare emoluments like pension, gratuity etc.
- Gig workers miss out on statutory safeguards with respect to unfair termination, minimum wages, paid leave, etc.
- Workers do not have the bargaining power to negotiate a fair deal with their employers.
- Banks and other financial service providers resist extending lines of credit when steady income is not assured
- In situations where teamwork is essential, gig worker teams formed and disbanded on a case-to-case basis will likely produce tardy, inconsistent and poor output
- Unionization of workers will be difficult.
- In industries such as information technology and pharmaceuticals where confidentiality becomes crucial, having control over the actions of a gig worker will be challenging.

Challenges in India:

- Minimum wages in India are woefully low. Earning an 'employee' status may not entitle them to more than what they currently make.
- Outside social security net: Social security laws like the EPF and ESI currently only cover employees earning below Rs 15,000 and Rs 21,000 per month, respectively.
- If drivers earn more, they may not be entitled to these benefits, even after they get employment status, leaving them in a position that isn't significantly better than before.
- Most Indian employment laws expressly prohibit dual employment, i.e. individuals cannot carry out two jobs if the total working hours exceed 8-9 hours a day based on location.
- Many gig workers work with multiple apps at the same time to supplement their income, which may become harder or illegal to do if they attain employment status with app operators.
- Security: A big drawback for a gig economy system was the lack of security for workers. Those working in the gig economy do not enjoy the same rights and protections as employed workers, such as health benefits, overtime pay and sick leave pay.

Measures needed:

- Basic labour protection like minimum wages, paid leave provisions and maternity benefits should be available to gig workers as well.
- The proposed Code on Wages and the Labour Code on Social Security are steps in the right direction.



- The state should balance the interests of business exigencies and social welfare.
- India can engage with the European Union and the United States, where discussion on protections in a gig economy is already underway.
- The government need to redefine labour laws that must not stifle innovation but certainly prevent exploitation.

Way forward:

- The ecosystem of public policy, platform work, and the government together can suggest an urban 'Jobs for All', a financialised employment guarantee scheme.
- The work created by these companies could easily be regulated as public goods in the coming years because it creates mobility and facilitates the movement of goods.
- An increasing number of these jobs has been created through incentivised demand using cashbacks, coupons, low fares, and even free services rather than through natural demand.
- Platforms have created public utilities that may not have been needed before via what is often low-skilled and poor quality work, but it is work that brings in some earnings.
- They have given urban workers a financialised, self-driven, optional economic safety net of 'having a job, having a gig'.

Conclusion:

The Karnataka government's move to add benefits is welcome and can provide a degree of public welfare assistance to a significant and growing workforce in India. The government needs to step in, not to regulate away flexibility but to build worker and workplace protection into the system. The business, as well as welfare considerations of the workers, should be well balanced.

Insolvency and Bankruptcy Code should be the preferred option for resolution of bad loans, not the last resort. Debate.(250 words)

[Indianexpress](https://www.indianexpress.com)

Why this question:

The article provides for a detailed analysis of the recent Supreme Court's verdict in the ArcelorMittal and Essar steel case.

Key demand of the question:

One has to examine the utility of IBC, and explain in what way it is the preferred option for resolution of bad loans, however not the last resort.

Directive:

Debate – Weigh up to what extent something is true. Persuade the reader of your argument by citing relevant research but also remember to point out any flaws and counter-arguments as well.

Conclude by stating clearly how far you agree with the original proposition.

Structure of the answer:

Introduction:

In brief highlight the provisions of IBC and bring out the gist of recent SC's verdict and its impact.

Body:

Explain that the IBC, 2016 is the bankruptcy law of India which seeks to consolidate the existing framework by creating a single law for insolvency and bankruptcy. The insolvency and bankruptcy code is often hailed as a significant reform in the Indian context for resolving insolvencies which previously was a long process that did not offer an economically viable arrangement.



The code aims to protect the interests of small investors and make the process of doing business less cumbersome. Though there have been a few positive results in its short history given that the recovery rates have improved considerably compared to the time period before its implementation, there is still scope for improving the recovery percentages.

Comment on the observations made by the court.

Take hints from the article and weigh the pros and cons of the code.

Conclusion:

Conclude with way forward.

Introduction:

The introduction of the Insolvency and Bankruptcy Code (IBC) marked a structural change in the resolution architecture in India. The shift to a time-bound resolution process — meant to facilitate the quick exit of firms — was a tool to help tackle the bad loan problem. The Supreme Court judgment in the **Essar Steel case** has restored the **primacy of the committee of creditors (CoC)**, settling the contentious issue of the distribution of funds between creditors.

Body:

IBC- the preferred option:

- **Unified law:** The interest of all parties i.e. lenders, borrowers and even operational creditors is now addressed under a unified law under the IBC.
- **Changed behavior of defaulters:** The IBC has given more teeth to lenders and has changed the credit behavior of borrowers. Now, there is a heartening trend of defaulters paying up dues before the case is admitted for insolvency under IBC.
- **Shift of control from debtor to creditor:** IBC proposes a paradigm shift from the existing 'Debtor in possession' to a 'Creditor in Control' regime, as now the Board of Directors is suspended in case of default and the IP manages the enterprise in the best interest of all its stakeholders.
- **Resolving the 'chakravayuh challenge':** IBC has made possible for struggling companies to 'exit' easily allowing creditors to take the company to the NCLT for winding up.
- **Spurs professionalism in financing sector:** IBC has reduced crony capitalism, under and over invoicing, serial defaulters and lead to better allocation of capital by limiting the escape routes for defaulters and water tight frame for disposal of cases

Drifting away from IBC:

- Initially, the IBC was touted as a game changer in dealing with bad loans.
- A few weeks ago, the minister of state for finance, signalling the shift in stance, said there should be an attempt to resolve stressed assets outside the IBC as it would help banks and the business community.
- Amongst banks, too, scepticism about the process appears to have crept in.
- Rather than taking companies to the NCLT, banks now appear to be in favour of resolving the bigger cases outside the IBC process.

Reasons for this shift away from IBC:

- **Delays in the resolution of cases and endless litigation**



- These have dampened enthusiasm for the process.
- Of the 1,497 cases that are currently going through the resolution process, 36 per cent have crossed 270 days, while another 22 per cent have crossed 180 days.
- As a time-bound resolution process was one of the most appealing aspects of IBC, such delays create little incentive for stakeholders to opt for this process.
- **Poor recovery rates:**
 - Barring a few cases, the recovery rates have not have been along expected lines. Part of the problem is that recovery rates tend to be pro-cyclical.
 - During high growth phases, businesses tend to be inclined to bid more for assets as expectations for higher returns are baked in.
 - The recovery rate under IBC currently stands at 41 per cent. But, this also needs to be qualified.
 - The higher recovery rates are driven partly by the resolution of steel companies during a period that coincided with high global steel prices.
 - Even Arcelor Mittal's bid for Essar Steel was made during this period. Excluding steel companies would significantly lower the recovery rates.
 - A slowing economy, coupled with an over-leveraged corporate sector, has reduced appetite for assets stuck in the NCLT.
 - Not only have recovery rates been low in the cases resolved, but more than half of the cases closed so far have ended up in liquidation as there have been no buyers.
 - In such a scenario, as banks would have to take huge haircuts, in both resolution and liquidation, there is little incentive to resolve bad loans through IBC.
- **Lack of clear precedents:**
 - This has complicated matters. For investors, it was hardly possible to calculate expected returns on their investment with any degree of certainty.
 - Instances such as the enforcement directorate attaching property, as in the case of Bhushan Power and Steel, have further disincentivised buyers.

Measures needed:

- The provisioning norms for bad loans should be made more stringent to ensure banks have strong incentives to take companies through this process and not postpone the decision, hoping to restructure the loan outside IBC.
- Relaxing the 330-day deadline will further dampen enthusiasm. The idea of having a time-bound process was to put pressure on the CoC to ensure speedy resolution. Delays in either taking the company to NCLT or in the resolution process destroys enterprise value. This decision must be reviewed.
- The government should establish the supremacy of IBC to ensure that assets are not allowed to be attached once they have been admitted.



- Under Section 53 of the law, amounts due to the central government rank below those of secured and unsecured creditors. This hierarchy needs to be respected.
- There also needs to be clarity on the role of promoters. While barring all promoters from bidding was a harsh step, there needs to be consistency of approach.

Conclusion:

IBC as a structural reform has demonstrable impact, which is reflected in behavioural change among debtors, creditors and other stakeholders, it is the IBC or the insolvency law which has trumped even the GST.

Explain how consumer spending surveys can aid gauge demand and growth trends in the economy? What will be the impact of withholding the current CES on policy making? Elucidate.(250 words)

The hindu

Why this question:

Recently, the government announced that in view of “data quality issues” the Ministry of Statistics and Programme Implementation had decided not to release the results of the all-India Household Consumer Expenditure Survey conducted by the National Statistical Office (NSO) during 2017-2018. Thus the question.

Key demand of the question:

One must discuss the significance of consumer spending surveys and their significance in policy making.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In brief narrate What CES is.

Body:

The CES is traditionally a quinquennial (recurring every five years) survey conducted by the government’s National Sample Survey Office (NSSO) that is designed to collect information on the consumption spending patterns of households across the country, both urban and rural.

The data gathered in this exercise reveals the average expenditure on goods (food and non-food) and services and helps generate estimates of household Monthly Per Capita Consumer Expenditure (MPCE) as well as the distribution of households and persons over the MPCE classes.

Explain its utility.

Discuss why the latest survey has become controversial.

Conclusion:

Conclude with way forward.

Introduction:

The **consumer spending surveys (CES)** is traditionally a **quinquennial** (recurring every five years) **survey** conducted by the government’s **National Sample Survey Office (NSSO)** that is designed to collect information on the consumption spending patterns of households across the country, both urban and rural.

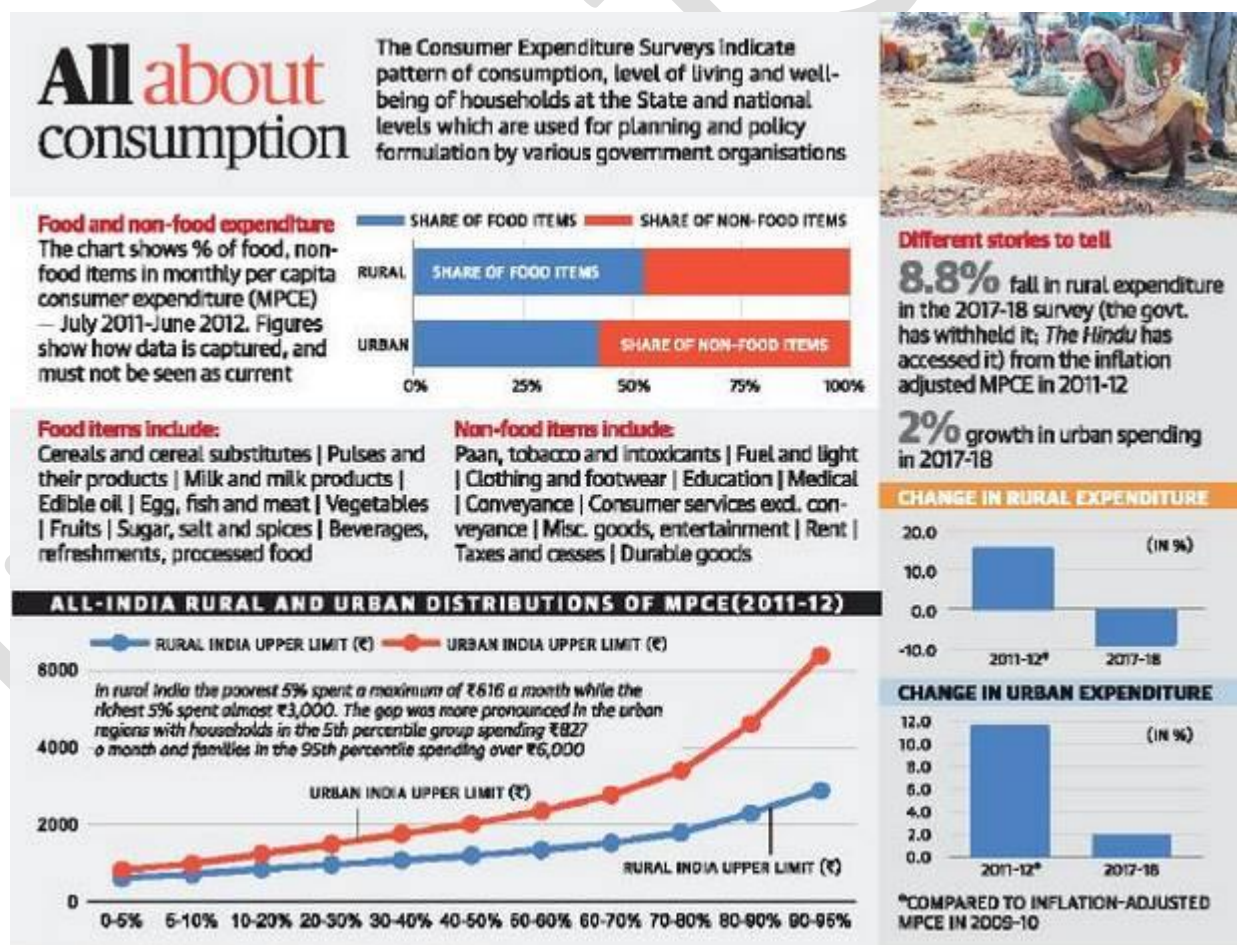


The government recently announced that in view of “data quality issues” the Ministry of Statistics and Programme Implementation had decided not to release the results of the all-India Household Consumer Expenditure Survey conducted by the National Statistical Office (NSO) during 2017-2018.

Body:

Uses of CES:

- The estimates of monthly per capita consumption spending are vital in gauging the demand dynamics of the economy.
- It is also used for understanding the shifting priorities in terms of baskets of goods and services, and in assessing living standards and growth trends across multiple strata.
- From helping policymakers spot and address possible structural anomalies that may cause demand to shift in a particular manner in a specific socio-economic or regional cohort of the population.
- It provides pointers to producers of goods and providers of services, the CES is an invaluable analytical as well as forecasting tool.
- It is, in fact, used by the government in rebasing the GDP and other macro-economic indicators.



Impact of withholding the current CES on policy making:



- The government's decision to withhold the survey's findings deprives policymakers of invaluable contemporary consumption data that would have helped **drive their intervention strategies**.
- Instead of a six-year gap, the next survey's findings — depending on when the Ministry decides to actually undertake it, 2020-21 or 2021-22 — would end up coming after 9 or 10 years after the 2011-12 round.
- With the Advisory Committee on National Accounts Statistics also having separately recommended that 2017-18 would not be used as an appropriate year for rebasing of the GDP series, the very credibility of GDP data going forward could come under greater scrutiny.

Lessons from the previous survey:

- Apart from the omnibus '**Key Indicators of Household Consumer Expenditure in India, 2011-12**' the Ministry released as many as six detailed reports on varied aspects of household consumer expenditure based on the survey.
- These included the '**Level and Pattern of Consumer Expenditure 2011-12**', '**Household Consumption of Various Goods and Services in India, 2011-12**' and the invaluable '**Nutritional Intake in India, 2011-12**'.
- There were also detailed findings on the **energy sources used by households for cooking and lighting** and another report on the **Public Distribution System and other sources of household consumption**.
- Several researchers had also pointed to the widening inequality revealed by the 2011-12 survey: in terms of sharp variations between States with better socio-economic indices and those still aiming to improve, the urban-rural divide and the gap between the highest spending and the lowest spending fractiles.
- The previous report on nutritional intake also showed a big gulf in the consumption patterns of urban and rural households and a similar chasm between the top 5% and the bottom 5% on food products contributing to nutrition.

Conclusion:

As a subscriber to the International Monetary Fund's Special Data Dissemination Standard (SDDS), India is obliged to follow good practices in four areas in disseminating macroeconomic statistics to the public. These comprise the coverage, periodicity, and timeliness of data; public access to those data; data integrity; and data quality.

Major crops cropping patterns in various parts of the country, different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers In the context of the stated aim of doubling farmer's income, discuss the challenges involved in realizing the same and also suggest suitable measures required to overcome them. (250 words).

Introduction:



Government presented the vision of doubling farmer incomes by 2022-23 however there was no assessment of the base (2015-16) aggregate income levels. Germany has told India it can play key role in doubling farmers' income as the European nation has the expertise in farm mechanisation and post-harvest management

Body:

Challenges involved in realizing the aim of doubling farmer's income:

- **High Input costs:**
 - Land degradation has become a major challenge and cost of farming is constantly rising with usage of fertilizer, pesticides, expensive seed varieties, machinery, labour cost, rise in fuel prices, vagaries of monsoon. This further complicates the livelihood of farmers
 - In India, farmers are poor due to low productivity (yield per hectare) of all major crops.
 - Growth in rural lending has decreased and indeed most of the rural lending is indirect rather than direct.
- **Farmers income remained low:**
 - India had record food production in 2017-18, but farmers' income remained low and stagnant.
 - According to Ashok Dalwai committee, farmer's income remained about 15-40% of consumer's price.
 - Studies conducted by the International Food Policy Research Institute and World Bank have confirmed this.
- **Government Policies:**
 - India has excessively dependent on MSP to drive crop planning by farmers. MSP is restricted only to few crops.
 - In good harvest years, neither are MSP increased to ensure a floor price that covers costs and offers a remunerative return, nor is enough procured to ensure that even the MSP offered serves as a floor for market prices.
 - The government continues to use old draconian measures, including stocking restrictions and bans on exports and futures trading, to even small increase in food prices. Such steps may bring temporary relief to consumers, but end up hurting farmers.
 - Fiscal conservatism has adversely affected public investment in irrigation, drainage and flood control.
 - Liberalised imports of agricultural commodities including foodgrains and cotton have dampened domestic prices
- **Middlemen troubles:**
 - As pointed out by Ramesh Chand, in Punjab, there are as many as 22,000 commission agents and innumerable middlemen in each market.



- According to Ashok Gulati, former chairman of the Commission for Agricultural Costs and Prices, commission agents in Delhi charge exorbitant fees ranging from 6 per cent to 15 per cent.
- **Rigid Market Structure:**
 - Prevalence of APMC markets, trader cartels due to which low price for agri produce is offered specially due to bumper crop production.
- **Poor Infrastructure and Logistics:**
 - Lack of diffusion of adequate storage facilities lead to wastage. For instance, farmers dump truckloads of vegetables on road.
 - Food Parks projects concentrated near to cities and poor maintenance leads to spoilage of the crops.
 - Cold storage units exist in less than one-tenth of the markets and grading facilities in less than one-third; electronic weigh-bridges are available only in a few markets.
- **Aggressive cultivation led to plunge in demand:**
 - Once prices have increased farmers cultivated the crop aggressively leading to plunging of prices.
 - Two years ago, garlic fetched an average Rs 60 per kg rate in Rajasthan's Kota mandi. Enthused by it, farmers in the Hadoti region planted more area, only to see prices halve last May.
 - Similar was the case for other vegetables. Example: Tomato, Toor Dal etc.
- **Pro-Consumer bias:**
 - In most years, for the majority of agri-products, the policymakers used restrictive export policies to keep domestic prices low. This showed the pro-consumer bias in the policy complex.
- **Information Asymmetry:**
 - A bumper crop can pull down prices in wholesale markets. Price spikes after a poor crop are inevitably dealt with through cheap imports in a bid to protect consumers. The opposite is done less frequently. This is due to lack of information.
 - The bountiful rains of 2016 resulted in record farm output. Prices crashed. Farmers are reported to have not been able to even recover the cost for some crops.
 - The prospects of a good monsoon pushed up rural wages. The reality of rock bottom prices then destroyed profit margins.

Government has set up many committees like **Swaminathan committee and the recent Ashok Dalwai committee** to give solutions to agrarian distress in India. The **measures that can help agrarian distress in the country are as follows:**

- **Credit, finance and Insurance:**



- Raising the MSP, price deficiency payments or income support schemes can only be a partial solution to the problem of providing remunerative returns to farmers.
- A **functional institutional credit system** which is accessible and accountable to all cultivators.
- This covers not only land-owning farmers but also sharecroppers, tenants, adivasi and women farmers, and animal-rearers.
- Credit products for agriculture need to be tailor-made based on cropping and rain cycle, specific to a particular region. The regional offices of commercial banks should contribute in this exercise. Registration of all cultivators and providing Kisan credit cards.
- The period of crop loan should be extendable to four years, given that, on average, every second or third year the spatial distribution of rain pattern is erratic in India.
- **Land holdings:**
- The average size of farm holdings **declined from 2.3 hectares in 1970-71 to 1.08 hectares in 2015-16.**
- Policies for land consolidation along with land development activities in order to tackle the challenge of the low average size of holdings.
- Farmers can **voluntarily come together** and pool land to gain the benefits of size. Through consolidation, farmers can reap the economies of scale both in input procurement and output marketing.
- **Input Costs:**
 - It is more important to make agriculture sustainable by reducing input costs of seeds, fertilizers and other inputs.
 - Investment in infrastructure and research and development are needed.
 - There is a need for collaboration of **industry-academia** for coming out with cost-effective solutions to agrarian distress.
 - There is a need to make a shift from rice and wheat-centric policies to millets, pulses, fruits, vegetables, livestock and fish.
- **Remunerative Prices:**
 - Extending reach of minimum support price which has been dedicated to few crops and in a narrow geographical area is important.
 - Set up of Futures and Trade markets, tie up of farmer and private companies for procurement should be looked into as alternative methods against distress sale.
- **Agro- Produce Marketing and Processing:**
 - The creation of a **competitive, stable and unified national market** is needed for farmers to get better prices.



- For better price for farmers, agriculture has to go beyond farming and **develop a value chain comprising farming, wholesaling, warehousing, logistics, processing and retailing.**
 - The agro-processing industry and warehousing needs to expand so that agricultural produce can be stored when prices plunge.
 - Promoting viable farmer collectives to act as a “collective voice of marginal and small farmers”.
 - Legislations on the basis of NITI Aayog’s new model law — **Agricultural Produce and Livestock Marketing (Promotion and Facilitating) Act (APLM)** should be enacted in all states.
 - A sustainable solution is market reforms to enable better price discovery combined with long-term trade policies favourable to exports.
- **Technology:**
 - Use water-use efficient technologies that can improve significantly the produce like drip irrigation and sprinkler irrigation.
 - Precision agriculture, GM Crops should be encouraged drought prone areas.
 - Space technology and Mobiles should act as “Eyes and Ears” of the farmers to assist in farming.
 - **Distress Management:**
 - Establish farmers’ distress and disaster relief commissions at the national and State levels, based on the model of **Kerala Farmers’ Debt Relief Commission.**

Conclusion:

To achieve government’s goal of doubling farmers’ incomes by 2022-23, the Dalwai Committee points out that farmers’ real incomes need to grow at 10.4 per annum, that is 2.8 times the growth rate achieved historically. To secure future of agriculture and to improve livelihood of half of India’s population, adequate attention needs to be given to improve the welfare of farmers and raise agricultural income. It is essential to mobilize States and UTs to own and achieve the goal of doubling farmers’ income with active focus on capacity building (technology adoption and awareness) of farmers that will be the catalyst to boost farmers’ income.

Issues related to direct and indirect farm subsidies and minimum support prices; Public Distribution System- objectives, functioning, limitations, revamping; issues of buffer stocks and food security; Technology missions; economics of animal-rearing.

Discuss the pattern in the distribution of Livestock based industry in India. (250 words).

Introduction:

India’s livestock sector is one of the largest in the world. Livestock sector plays an important role in Indian economy. It is a source of subsidiary income for many families in India especially the



poor. Animals provide nutrient-rich food products, draught power, dung as organic manure and domestic fuel, hides & skin, and are a regular source of cash income for rural households. They are a natural capital, which can be easily reproduced to act as a living bank with offspring as interest, and an insurance against income shocks of crop failure and natural calamities.

Body:

Trends in livestock population: (Source: 20th Livestock Census)

- Total Livestock population is 535.78 million- an increase of 4.6% over Livestock Census-2012.
- Total Bovine population (Cattle, Buffalo, Mithun and Yak)-79 Million in 2019- an increase of about 1% over the previous census.
- A **decline of 6 % in the total Indigenous/ Non-descript cattle** population over the previous census.
- The population of cows in the country has risen by 18 per cent in the last seven years, while that of oxen dipped by 30 per cent, according to the latest census of livestock.
- there was a spectacular 16.8 per cent increase in the poultry population in the country to 851.81 million, mainly on account of a 46 per cent rise in backyard poultry birds, whose numbers have gone up to 317 million.
- The number of female cattle is 145.12 million, which is 18 per cent over the 122.98 million in 2012. The number of male cattle, on the other hand, dropped to 47.4 million as against 67.92 million in 2012.
- While cattle accounted for 35.94 per cent of total livestock in the country, goats accounted for 27.80 per cent, buffaloes: 20.45 per cent, sheep: 13.87 per cent and pigs: 1.69 per cent.

Pattern in the distribution of Livestock based industry in India:

- About 20.5 million people depend upon livestock for their livelihood.
- Livestock contributed 16% to the income of small farm households as against an average of 14% for all rural households.
- Livestock provides livelihood to two-third of rural community. It also provides employment to about 8.8 % of the population in India.
- India has vast livestock resources. Livestock sector contributes 4.11% GDP and 25.6% of total Agriculture GDP.

Measures needed to strengthen livestock industry:

- A national breeding policy is needed to upgrade the best performing indigenous breeds.
- Buffalo breeding ought to be given more attention, while poultry breeding should be focused on conservation.
- State governments should be encouraged to participate in national breeding policy implementation. Geographical information system-based analysis must be utilised to map production systems.
- Animal health care should become a priority, with greater investment in preventive health care.



- Private investment must also be encouraged. The government needs to create better incentive structures for investment in livestock.
- State governments should sponsor research and assessment of the market, along with highlighting investment potential.

Conclusion:

With increasing population, persistent rise in food inflation, unfortunate rise in farmer's suicide and majority of the Indian population having agriculture as the primary occupation, the practice of animal husbandry is no more a choice, but a need in contemporary scenario. Its successful, sustainable and skilful implementation will go a long way in ameliorating the socio-economic condition of lower strata of our society. Linking the animal husbandry with food processing industry, agriculture, researches & patents has all the possible potential to make India a nutritional power house of the world. Animal husbandry is the imperative hope, definite desire and urgent panacea for India as well as the world.

Do you think reviewing open-ended procurement and shifting towards private procurement to correct market inefficiencies is worth serious consideration as suggested by CACP? Analyse. (250 words)

[Financial Express](#)

Why this question:

CACP, in its latest report for rabi season, has batted for direct procurement by private players, as envisaged under the Private Procurement Stockist Scheme. Thus the question.

Key demand of the question:

One has to provide for a detailed analysis of the benefits of using open-ended procurement and shifting towards private procurement to correct market inefficiencies.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

In short explain the role played by CACP to handle market inefficiencies.

Body:

The article very well explains why the govt. should opt for an open-ended grain procurement policy. Discuss the role played by the policy of MSP and the DBT experiment etc.

Analyse in what way the open-ended grain procurement policy may benefit the agriculture sector and discuss the associated challenges.

Conclusion:

Conclude with significance of such policies and need for a balanced approach.

Introduction:

The Commission for Agricultural Costs & Prices (CACP since 1985, earlier named as Agricultural Prices Commission) came into existence in January 1965. CACP, in its latest report for rabi season, has batted for direct procurement by private players, as envisaged under the Private Procurement Stockist Scheme.

Body:

**Need for a shift towards private procurement:**

- The open procurement policy has led to mounting food stocks and adversely affected crop diversification.
- These excess stocks create storage problems and also high storage and financing costs, leading to high subsidy.
- As of October 1, against a buffer requirement of 30.8 million tonnes (mt) of wheat and rice, the total central pool stock, including stock in transit, stood at 64.2 mt—**109% more than the requirement.**
- With paddy procurement yet to happen, this quantity will shoot up.
- The government has taken steps to liquidate 15 mt of stocks, but hasn't met much success here.
- The purpose of open-ended procurement was to provide support to farmers, given the MSP hikes, this seriously weighed down the government's finances.
- The Centre has made the Food Corporation of India shoulder this burden. Even as the economic cost of wheat increased 31.3% between FY14 and FY19, despite a 10-15% fall in the sale of subsidised grains, with no change in selling price via ration shops, the subsidy bill doubled from Rs 92,000 crore in FY14 to Rs 1,71,298 crore in FY19.
- This is the reason why long-term debt levels for FCI stand at Rs 200,000 crore, with an additional Rs 80,000 crore of short-term debt.

But private procurement alone will not suffice due to:

- As long as the government continues with MSP as its primary tool for farm support, kindling private players' interest in procurement of grains will prove difficult since no private trader will be willing to procure grains at a price higher than the market price, which is usually the case with MSP.
- Apart from quality issues with grains, the MSP regime also hinders liquidation of stocks through export since it will trigger violations of WTO norms.
- Given how MSP benefits only a small pool of farmers from a handful of states while distorting agricultural production in favour of a few crops, the government will be meaningfully supporting farmers if it were to give per-acre support.
- Farmers prefer to grow rice and wheat because the prices received are getting better by the day. Therefore, they are reluctant to migrate to other crops such as oilseeds and pulses, where typically the nation runs an import bill. This has skewed the cropping pattern in the country.

Measures needed:

- While MSP guarantees that farmers grow only certain kinds of crops, and subsidies on fertiliser and electricity mean indiscriminate use of these resources, a **fixed per-acre support scheme will help cut down wastage.**



- FCI can still maintain its buffer stock, but the PDS can be disbanded, as a NITI Aayog study shows that people tend to graduate to a higher quality of grains once they are allowed freedom and flexibility to choose.
- the procurement system has to be made closed-ended where FCI can go up to a certain margin over the buffer norms. While this can be based on a first-come-first-served basis, the unique ID can be used for bringing about a quota system where FCI purchases only up to a certain level from every farmer.
- Alternatively, farmers can be provided cash transfers which will be the price difference between the market price and MSP. This can be achieved in a transparent manner, if they can be made to sell on electronic commodity exchanges where there is an audit trail and one can eschew adverse selection.
- On the cropping side, the government should aim at providing incentives to farmers growing other alternative crops such as pulses and oilseeds. A cash bonus could be considered, based again on the unique ID.

Conclusion:

We certainly need to move away from open-ended schemes while retaining the ethos of not diluting the present benefits to farmers in a smarter manner. Or else the skewed farm matrix will continue to dominate our farm topography, which is not desirable.

Extra information: Functions of CACP:

- *It is mandated to recommend minimum support prices (MSPs) to incentivize the cultivators to adopt modern technology, and raise productivity and overall grain production in line with the emerging demand patterns in the country.*
- *Assurance of a remunerative and stable price environment is considered very important for increasing agricultural production and productivity since the market place for agricultural produce tends to be inherently unstable, which often inflict undue losses on the growers, even when they adopt the best available technology package and produce efficiently.*
- *Towards this end, MSP for major agricultural products are fixed by the government, each year, after taking into account the recommendations of the Commission.*
- *As of now, CACP recommends MSPs of 23 commodities, which comprise 7 cereals (paddy, wheat, maize, sorghum, pearl millet, barley and ragi), 5 pulses (gram, tur, moong, urad, lentil), 7 oilseeds (groundnut, rapeseed-mustard, soyabean, seasmum, sunflower, safflower, nigerseed), and 4 commercial crops (copra, sugarcane, cotton and raw jute).*

Discuss the scope & challenges of aquaculture in India.(250 words)

Reference

Why this question:

The question is based on the aspects of aquaculture.

Key demand of the question:

One must present a detailed discussion on the scope & challenges of aquaculture in India.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.



Structure of the answer:

Introduction:

Define Aquaculture and provide certain facts regarding the aquaculture in India.

Body:

Aquaculture (aqua farming) means farming of aquatic organisms in both coastal (saltwater) and inland (freshwater) areas. As per FAO, aquaculture in India accounts for 85% of the total fish production.

Write about the scope of aquaculture in India and then in brief mention about the challenges associated with it.

Discuss the steps taken by the government in this direction like Matsya Sampada Yojna etc.

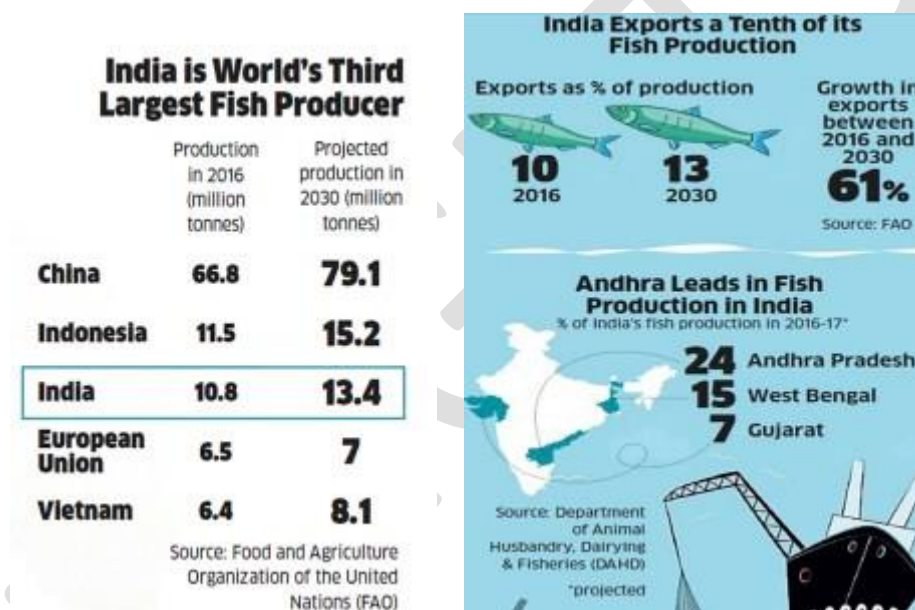
Conclusion:

Conclude with way forward to tackle the above challenges and the prospects it holds for the economy in future.

Introduction:

Aquaculture or aqua farming is the cultivation of aquatic organisms – fish, shellfish and aquatic plants. Farming implies some form of intervention in the rearing process to enhance production, such as regular stocking, feeding, protection from predators, etc. It includes both marine water and freshwater species and can range from land based to open ocean production.

Body:



Scope:

- Aquaculture resources in India include 2.36 million ha of ponds and tanks, 0.798 million ha of flood plain lakes/derelict waters plus in addition 195 210 km of rivers and canals, 2.907 million ha of reservoirs and that could be utilized for aquaculture purposes.
- The total fish production during 2017-18 is estimated to be 12.60 million metric tonnes, of which nearly 65% is from inland sector and about 50% of the total production is from culture fisheries, and constitutes about 6.3% of the global fish production.
- India has over 3,000 species of fish, two-thirds of which are marine, a third are freshwater, and over 100 are brackish-water. In the past few years, in addition to whiteleg shrimp in



brackish water, freshwater species like pangasius (a kind of catfish) and tilapia have become popular in aquaculture.

- Ponds and tanks are the prime resources for freshwater aquaculture, however, only about 40 percent of the available area is used for aquaculture currently.
- It has been estimated that about 1.2 million ha of potential brackish water area available in India is suitable for farming.
- In addition to this, about 9.0 million ha of salt affected areas are also available.
- The farming of shrimp is largely dependent on small holdings of less than 2 ha, these farms account for over 90 percent of the total area utilized for shrimp culture.
- More than 50 different types of fish and shellfish products are being exported to 75 countries around the world.
- Fish and fish products have presently emerged as the largest group in agricultural exports from India, with 13.77 lakh tonnes in terms of quantity and Rs. 45,106.89 crore in value.
- This accounts for around 10% of the total exports and nearly 20% of the agricultural exports, and contribute to about 0.91% of the GDP and 5.23% to the Ag – GVA of the country.
- With over 2.4 lakh fishing crafts operating along the coast, 7 major fishing harbours, 75 minor fishing harbours and 1,537 landing centres are functioning to cater to the needs of over 4.0 million fisher folk.
- For promoting aquaculture, 429 Fish Farmers Development Agencies (FFDAs) and 39 Brackish water Fish Farms Development Agencies (BFDAs) were established in the country.

Challenges:

- At present, freshwater aquaculture system remains restricted to carp culture in a few private ponds, prawn cum paddy culture in limited areas, stocking of carps in a few irrigation reservoirs, and river ranching in a few rivers on a limited scale.
- No serious effort has been taken to develop coldwater fish culture, game fisheries, culture of indigenous fish species of India, freshwater pearls, etc.
- ornamental fish industry still prefers imported feeds due to lack of indigenously- made feeds of good quality.
- In shrimp culture, only 15 percent of the potential area has been put into culture purpose.
- Most of the freshwater fishes are marketed whole without any processing. No effort has been taken to make value-added products like fish fillets, surimi etc.
- It has also brought vast un-utilized and under-utilized land and water resources under culture
- Over the years, however, culture practices have undergone considerable intensification and with the possibility of obtaining high productivity levels there has been a state of flux between the different farming practices.



- In the brackish water sector there were issues of waste generation, conversion of agricultural land, salinization, degradation of soil and the environment due to the extensive use of drugs and chemicals, destruction of mangroves and so on.
- in many cases, aquaculture administration still falls under more than one agency, which often hinders progress.

Way forward:

- Advanced farming practices such as cage culture; pen culture and running water culture are emerging in many places, and have great potential for utilizing vast areas of freshwater bodies in India.
- The cultivable space could be more effectively enhanced by utilizing the available water area, and facilitating easier harvesting compared to the conventional farming in earthen ponds.
- Cage culture does not affect the indigenous flora and fauna of the reservoirs or their water flow characteristics, and is therefore ecologically safe.
- The rich resources of wetlands, which remain fallow during major parts of the year could be brought under freshwater prawn farming to enhance production and productivity from these fallow water bodies.
- Serious effort to protect the biodiversity is needed in the case of indigenous ornamental fishes and coldwater fishes.

Conclusion:

Aquaculture over recent years has not only led to substantial socio-economic benefits such as increased nutritional levels, income, employment and foreign exchange. With freshwater aquaculture being compatible with other farming systems, it is largely environmentally friendly and provides for recycling and utilization of several types of organic wastes.

Food processing and related industries in India- scope and significance, location, upstream and downstream requirements, supply chain management.

Livestock is the lifeline of the Indian Agro-based economy, in this context Discuss the role that Livestock plays in the socio-economic life of India. (250 words)

[The hindu](#)

Why this question:

The tariff clauses for agriculture in the RCEP are much more severe compared to the existing World Trade Organization (WTO) agreement. While the WTO allows a country to fix tariffs up to a certain maximum, or bound tariff, for a given commodity line, the RCEP binds countries to reduce that level to zero within the next 15 years. Currently, India's average bound tariff for dairy products is about 63.8% while its average applied tariff is 34.8%. Thus the question.

Key demand of the question:

The question aims to ascertain the significance of Livestock to Indian Agro-based economy and its role in the socio-economic life of the country.

Directive:



Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief discuss the Indian Dairy scenario with key facts and statistics.

Body:

A key feature of India's dairy sector is the predominance of small producers. In 2017, if the average herd size in a dairy farm was 191 in the U.S., 355 in Oceania, 148 in the U.K. and 160 in Denmark, it was just 2 in India.

Consequent to Operation Flood of the 1960s, India's contribution to world milk production rose from 5% in 1970 to 20% in 2018. Today, India is largely self-sufficient in milk production. It does not import or export milk in any significant quantity.

Give a brief account on the global scenario.

Explain the Significance of Dairy sector to India.

Discuss that In India, livestock provides regular, supplementary income to producers engaged in secondary and tertiary forms related to livestock business.

Discuss the effect of recently concluded negotiations at RCEP.

Conclusion:

Conclude that any future negotiations must keep in mind the significance of the dairy sector to India not just in the economic context but also in its unique role in the social transformation of the rural landscape.

Introduction:

India's livestock sector is one of the largest in the world. About 20.5 million people depend upon livestock for their livelihood. Livestock contributed 16% to the income of small farm households as against an average of 14% for all rural households. Livestock provides livelihood to two-third of rural community. It also provides employment to about 8.8 % of the population in India. India has vast livestock resources. Livestock sector contributes 4.11% GDP and 25.6% of total Agriculture GDP.

India's withdrawal from the Regional Comprehensive Economic Partnership (RCEP) is considered as a major victory for the farmer's organisations, trade unions, MSME organisations and civil society groups, which had protested against the free trade agreement. RCEP would have proven suicidal for India's dairy sector.

Body:

Trends in livestock population: (Source: 20th Livestock Census)

- Total Livestock population is 535.78 million- an increase of 4.6% over Livestock Census-2012.
- Total Bovine population (Cattle, Buffalo, Mithun and Yak)-79 Million in 2019- an increase of about 1% over the previous census.
- A decline of 6 % in the total Indigenous/ Non-descript cattle population over the previous census.
- The population of cows in the country has risen by 18 per cent in the last seven years, while that of oxen dipped by 30 per cent, according to the latest census of livestock.
- there was a spectacular 16.8 per cent increase in the poultry population in the country to 851.81 million, mainly on account of a 46 per cent rise in backyard poultry birds, whose numbers have gone up to 317 million.



- The number of female cattle is 145.12 million, which is 18 per cent over the 122.98 million in 2012. The number of male cattle, on the other hand, dropped to 47.4 million as against 67.92 million in 2012.
- While cattle accounted for 35.94 per cent of total livestock in the country, goats accounted for 27.80 per cent, buffaloes: 20.45 per cent, sheep: 13.87 per cent and pigs: 1.69 per cent.

Role of livestock in socio-economic life of India:

The livestock plays an important role in the economy of farmers. The farmers in India maintain mixed farming system i.e. a combination of crop and livestock where the output of one enterprise becomes the input of another enterprise thereby realize the resource efficiency. The livestock serve the farmers in different ways.

- **Income:**
 - Livestock is a source of subsidiary income for many families in India especially the resource poor who maintain few heads of animals.
 - Cows and buffaloes if in milk will provide regular income to the livestock farmers through sale of milk.
 - Animals like sheep and goat serve as sources of income during emergencies to meet exigencies like marriages, treatment of sick persons, children education, repair of houses etc.
 - The animals also serve as moving banks and assets which provide economic security to the owners.
- **Employment:**
 - A large number of people in India being less literate and unskilled depend upon agriculture for their livelihoods.
 - But agriculture being seasonal in nature could provide employment for a maximum of 180 days in a year.
 - The land less and less land people depend upon livestock for utilizing their labour during lean agricultural season.
- **Food:**
 - The livestock products such as milk, meat and eggs are an important source of animal protein to the members of the livestock owners.
 - The per capita availability of milk is around 355 g / day; eggs is 69 / annum;
- **Social security:**
 - The animals offer social security to the owners in terms of their status in the society.
 - The families especially the landless which own animals are better placed than those who do not.
 - Gifting of animals during marriages is a very common phenomenon in different parts of the country.



- Rearing of animals is a part of the Indian culture. Animals are used for various socio religious functions.
- Cows for house warming ceremonies; rams, bucks and chicken for sacrifice during festive seasons;
- Bulls and Cows are worshipped during various religious functions. Many owners develop attachment to their animals.
- **Gender equity:**
 - Animal husbandry promotes gender equity.
 - More than three-fourth of the labour demand in livestock production is met by women.
 - The share of women employment in livestock sector is around 90% in Punjab and Haryana where dairying is a prominent activity and animals are stall-fed.
- **Draft:**
 - The bullocks are the back bone of Indian agriculture.
 - The farmers especially the marginal and small depend upon bullocks for ploughing, carting and transport of both inputs and outputs.
- **Dung:**
 - In rural areas dung is used for several purposes which include fuel (dung cakes), fertilizer (farm yard manure), and plastering material (poor man's cement).

Conclusion:

With increasing population, persistent rise in food inflation, unfortunate rise in farmer's suicide and majority of the Indian population having agriculture as the primary occupation, the practice of animal husbandry is no more a choice, but a need in contemporary scenario. Its successful, sustainable and skilful implementation will go a long way in ameliorating the socio-economic condition of lower strata of our society. Linking the animal husbandry with food processing industry, agriculture, researches & patents has all the possible potential to make India a nutritional power house of the world. Animal husbandry is the imperative hope, definite desire and urgent panacea for India as well as the world.

Science and Technology- developments and their applications and effects in everyday life; Achievements of Indians in science & technology; indigenization of technology and developing new technology.

Despite the natural advantages, inconsistent policy has been the bane for India's solar energy sector. Analyze the statement.(250 words)

[Reference](#)

Introduction:



National Solar Mission envisages establishing **India as a global leader in solar energy**. The Mission has set the ambitious target of **deploying 100GW of grid connected solar power by 2022**. (40 GW Rooftop and 60 GW through Large and Medium Scale Grid Connected Solar Power Projects). The country's solar installed capacity reached **28.18 GW on March 31, 2019**.

Body:

Natural advantages of Solar energy in India:

- India has a great potential to generate electricity from solar energy and the Country is on course to emerge as a solar energy hub.
- The techno-commercial potential of photovoltaics in India is enormous. With GDP growing in excess of 8%, the energy 'gap' between supply and demand will only widen. Solar PV is a renewable energy resource capable of bridging this 'gap'.
- Most parts of India have 300 – 330 sunny days in a year, which is equivalent to over 5000 trillion kWh per year – more than India's total energy consumption per year.
- Average solar incidence stands at a robust 4 – 7 kWh/sq. Meter/day.
- About 66 MW of aggregate capacity is installed for various applications comprising one million industrial PV systems – 80% of which is solar lanterns, home/street lighting systems and solar water pumps, etc.
- The estimated potential envisaged by the Ministry for the solar PV programme, i.e. solar street/home lighting systems, solar lanterns is 20 MW/sq. kilometre.
- The potential of the solar thermal sector in India also remains untapped. The Ministry proposes an addition of 500 MW during the phase 1 of JNNSM.
- Establishing manufacturing units at Export Oriented Units, SEZs or under the SIPS programme presents a good opportunity for firms which can leverage India's cost advantage to export solar modules at competitive prices to markets in Europe and the United States.

Achievements:

- National Solar Mission envisages establishing **India as a global leader in solar energy**.
- The Mission has set the ambitious target of **deploying 100GW of grid connected solar power by 2022**. (40 GW Rooftop and 60 GW through Large and Medium Scale Grid Connected Solar Power Projects).
- The country's solar installed capacity reached **21 GW as of 31 December 2018**.
- India along with Paris, on the side-lines of UNFCCC's CoP 21 at Paris (2015) decided to set up **International Solar Alliance**.
- The ISA's major objectives include global deployment of over 1,000GW of solar generation capacity and mobilisation of investment of over US\$ 1000 billion into solar energy by 2030.

Challenges:

- India should have taken a lead in solar panel manufacture to generate solar energy long ago. The share of all manufacturing in GDP was 16% in 1991; it remained the same in 2017.



- Despite the new policy focus on solar plant installation, India is still **not a solar panel manufacturer**.
- India's solar story is largely built over **imported products**. Remaining dependent on imports only leads to short-term benefits for India.
- The Chinese government has subsidised land acquisition, raw material, labour and export, among others. None of this is matched by the Indian government.
- The **cost of debt** in India (11%) is highest in the Asia-Pacific region, while in China it is about 5%.
- India's **domestic content requirement clause** is facing legal challenge at WTO.
- India is facing challenge to balance Prioritising domestic goals and WTO commitments.
- The **dumping of products** is leading to profit erosion of local manufacturers.
- Indian domestic manufacturers aren't **technically and economically strong** to compete with Chinese companies.
- China's strong manufacturing base is giving stiff challenge to domestic manufacturer.
- India's **solar waste** is estimated to be around 1.8 million by 2050 also needs to be tackled.

Way Forward:

- **Flexible financing options** for individuals to install rooftop solar installations would also support a faster adoption of clean energy.
- Strong financial measures are required to finance the solar projects, innovative steps like **green bonds, institutional loans and clean energy fund** can play a crucial role.
- Focus on **last mile connectivity** in remote areas where developing transmission infrastructure is a challenge through **small solar installations or solar community grids** by using a domestically manufactured product with small power inverters or batteries in every home may be helpful to ensure power for all in countries like India.
- This will also help **reduce time and cost** for developing transmission infrastructure.
- **State governments** need to **support semiconductor production** as part of a determined industrial policy to develop this capacity for the future.
- Promotion of research and development in renewable energy sector, especially in storage technology.
- Proper mechanism should be provided to tackle China's dumping of solar equipments.
- Framework to avoid unnecessary delays in policy decision making and implementation.
- India needs a **Solar Waste Management and Manufacturing Standards Policy**.

Discuss major fast-evolving ethical conundrums of biotechnology in detail. (250 words)

[Livemint](https://www.livemint.com)

Why this question:

The article discusses the ethical concerns associated with our capacity to re-engineer the biological world.


Key demand of the question:

Examine the pros and cons associated with the progress and achievements fast being made in the Biotechnology.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:
Introduction:

In brief narrate progress that Biotechnology has made so far.

Body:

Explain that in the information technology world, we have seen an explosion of Artificial Intelligence, automation, blockchains and data science tools in the last few years. All of these technologies, while distinct in their approach, actually cross-pollinate each other.

The world's denizens and their governments have rightly started to worry about issues such as data privacy, control over fiat currencies, job losses and widening income disparities.

Discuss the ethical questions that have arisen.

Conclusion:

Suggest what should be the way forward and how can this conundrum be faced.

Introduction:

Fifteen years after it rose and went limp, the biotech sector, globally, as well as in India has seen a bull run of sorts. In January this year, some 10 healthcare companies went public on the NASDAQ. Meanwhile, India has become the world's 12th biggest biotechnology economy having the second highest number of USFDA-approved plants. Biotechnology will help developing countries accomplish things that they could never do.

Body:

Technology and bioengineering have begun to take over in the life sciences industry. We have already seen ethical questions that arose from a Chinese experiment on interfering with the DNA of babies. Our capacity to re-engineer the biological world is truly mind-boggling in its scope now, and many technological offshoots attempt to fuse man and machine into a cohesive "super-human".

Ethical conundrums posed by biotechnology:

- **Respect:** The issue of how to prioritize the rights of humans, animals and ecosystems. The problems of attuning our ways so that our practices do not harm other living beings
- **Credit:** To ensure our work serves as a resource for the community and the broader public while still valuing those who do the work.
- **community:** To make decisions collectively and identify and engage non-bio stakeholders.
- **Autonomy:** To decide what forms of self-determination we value and identify relationships of power that impact autonomy.
- **Education:** To create space to learn and the confidence to teach.
- **Open science:** To encourage replicability and collaboratively share results? How do we stay open while being mindful of the risks posed by openness?
- **Transparency:** The measures needed to stay open about our failures and acknowledge ethical conflicts. Deciding on what acceptable funding sources are.



- **Data privacy:** To respect the sovereignty of data, treat stakeholders as peers, and agree on terms of use through informed consent.
- **Safety:** How do we embrace safe practices in unconventional contexts? How do we protect each other and create resources for communities to experiment safely?
- **Justice and fairness:** How do we engender justice and fairness in our practices? How can we avoid perpetuating systems of winners and losers? How do we account for the varied impact of our work?
- **Diversity and inclusion:** How do we make sure our organizations respect vulnerabilities and acknowledge privilege? How do we make our spaces valuable and accessible to communities whose interests are historically under-represented in the sciences?
- **Accountability:** Is there an active commitment to consider these questions? How will we be accountable to these ethics? How do we hold each other accountable and make ourselves accountable to those outside this community?

Way Forward:

- India's current regulatory architecture for approving novel treatments is ambiguous and assigns overlapping functions to different governmental bodies. This framework needs to be **restructured to optimize trial approval time while addressing safety requirements**.
- A **two-step model** wherein the **government works with industry and research groups to accelerate clinical research is recommended**. This model consists of a national apex committee working in collaboration with existing institutional ethics committees and independent accreditation agencies.
- It is envisaged that, India will emerge as a significant contributor to the world bioinformatics market and position itself as a global hub for bioinformatics.
- Indian bioinformatics sector has numerous strengths and competitive advantages to make bioinformatics sector a sunrise industry of India.
- With the improvements in the IPR regime, increasing support from the government and continuing efforts of the private sector companies, it is very much likely that India could repeat its IT success story in bioinformatics too.
- Much research on animal models and isolated human cells should be conducted before any full-scale routine application in humans.

Conclusion:

The scientific community and the technology counterpart must begin to consider these questions at the outset, long before we find ourselves overrun by droids and Frankensteins. Experiments and tests to validate the use of new discoveries must be subjected to appropriate scrutiny by the regulators, and their use must be controlled to prevent commercial misuse.

What is preventive precision medicine? Discuss in what way it can help India address inequities in healthcare system.(250 words)

Livemint

Why this question:

The article discusses the relevance of mapping genes to the Indian healthcare system.


Key demand of the question:

One must explain the concept of preventive precision medicine and its utility to Indian healthcare system.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:
Introduction:

In brief narrate the concept of precision medicine.

Body:

Discuss the concept – It is an emerging approach for disease treatment and prevention that takes into account individual variability in genes, environment, and lifestyle for each person.

Take hints from the article and explain in what way can help and aid the health system of India.

Quote examples to signify the utility of such an idea.

Conclusion:

Conclude with its relevance to Indian health system.

Introduction:

Preventive Precision medicine is “an emerging approach for disease treatment and prevention that takes into account individual variability in genes, environment, and lifestyle for each person.” This approach will allow doctors and researchers to predict more accurately which treatment and prevention strategies for a particular disease will work in which groups of people.

Body:
Precision medicine:

- It is about devising a tailor-made treatment process for each patient with detailed specifics for the right drugs, doses, medication timing and course duration, by capturing data about his or her genetic coding, environment and lifestyle.
- Laying the groundwork for a participatory, predictive and preventive healthcare service delivery system, it offers an effective and scalable solution to today’s healthcare problems.
- Precision medicine focuses on specific treatments by getting to the root of the illness.
- This approach will allow doctors and researchers to predict more accurately which treatment and prevention strategies for a particular disease will work in which groups of people.
- It is in contrast to a one-size-fits-all approach, in which disease treatment and prevention strategies are developed for the average person, with less consideration for the differences between individuals.

IndiGen benefits for precision medicine:

- The whole genome data will be important for building the knowhow, baseline data and indigenous capacity in the emerging area of Precision Medicine.
- The benefits include epidemiology of genetic diseases to enable cost effective genetic tests, carrier screening applications for expectant couples, enabling efficient diagnosis of heritable cancers and pharmacogenetic tests to prevent adverse drug reactions.



- The outcomes will have applications in a number of areas including predictive and preventive medicine with faster and efficient diagnosis of rare genetic diseases.
- The outcomes will be utilized towards understanding the genetic diversity on a population scale, make available genetic variant frequencies for clinical applications and enable genetic epidemiology of diseases.

Preventive Precision Medicine can help address inequities:

- Preventive precision medicine of this kind can help address inequities in how healthcare is financed.
- The combined government expenditure on healthcare was around 1.4% of India's gross domestic product (GDP) in 2017-18.
- Private expenditure is three times as much, which means individuals and families bear an overwhelming share of the costs.
- By some estimates, as many as 39 million people are pushed into poverty by healthcare expenses.
- Given such a pattern, making information about potential health risks available, raising awareness and providing counselling services can help reduce the incidence of many diseases.

Conclusion:

If the Indian government creates a national genomic platform now, it would serve as inclusive health infrastructure and enable future generations to lead much healthier lives, without having to suffer debilitating financial burdens.

While ISRO's credentials as a poster child for India's technological abilities have been fortified, it still has a long way to go in terms of its reputation as an enabler of local business. Discuss. (250 words)

[The hindu](#)

Why this question:

The Indian Space Research Organization's successful launch on Wednesday of Cartosat-3, along with 13 other small U.S. satellites, marks a major technological milestone for India.

Key demand of the question:

One must analyse the future of ISRO owing to aspects of commercialisation.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief narrate the achievements of ISRO.

Body:

Explain that While satellite launches make for a good spectacle, they are meaningful only in so far as they aid commerce and generate revenue and jobs. Indian regulations restrict access to satellite images sharper than one meter to the government. Other than for transponders, there is a long way to go for Indian private companies sending innovative payloads aboard ISRO launch vehicles. ISRO recently launched a company called New Space India Limited (NSIL), a competitor to Antrix, but like



it, is another public enterprise meant to commercialize space products and satellite development deals with private entities.

Conclusion:

Conclude with what needs to be done and suggest way forward.

Introduction:

The Indian Space Research Organisation's recently launched successfully Cartosat-3, along with 13 other small U.S. satellites. This marks a major technological milestone for India as Cartosat-3, as a commercial spacecraft, creates a wealth of applications. However, it is ironic that India—whose space-faring tradition is decidedly in the service of human development—is lagging in harnessing the power of private innovation in the space domain. This not only limits the exploitation of space for economic development, but has serious national security implications.

Body:

Applications of Cartosat-3:

- Cartosat-3 is capable of unprecedented image resolution of nearly 25 cm on the ground as against the best global military-grade satellites that can provide a 10 cm resolution.
- The best satellite images commercially available are between 25-30 cm.
- Military espionage is the lowest hanging fruit.
- It is believed that surveillance by the earlier Cartosat-2 satellite series — with a resolution, though coarser, of about 65 cm — was used to plan and execute military operations such as 'surgical strikes' across the Line of Control in 2016 and the Manipur-Myanmar border in 2015.
- For the government, such resolution can help monitor progress of road construction, coastal land-erosion, forest conservation, oceanic changes and infrastructure development.

Challenges faced:

- **Processing Issues:**
 - Image resolution is good to have but secondary to image processing.
 - That means unless and until there is sophisticated technology available to analyse the generated images, it will forever be inferior, and less valued, than coarser images scanned by better processing-software
- **Legal Issues:**
 - Indian regulations restrict access to satellite images sharper than one metre to the government.
- **Technical Issues:**
 - ISRO's key capability still lies in developing and launching small- and medium-sized satellites. There is a need to explore bigger sized satellites

Challenges for private space entities in India:



- **Monopoly:** In India 'Space' means Indian Space Research Organisation. Globally the technology is highly protected because of its dual use capability. Even if it was not, it would be prohibitively expensive.
- **Funding:** A major challenge in setting up a space business in India is funding. Space industry is capital intensive and upstream activities come with a long gestation period.
- **Investor's Dilemma:** The lack of clarity among the investors and lack of the ecosystem required for significant contribution is a challenge for the investors.
- **Lack of Regulation:** India is a party to the **Outer Space Treaty**, where one of the fundamental requirements laid upon states is the supervision of space activities within its borders, the country did not have any formally legislated laws. This is a potential roadblock for commercialization.
- **Growth Challenges:** Scaling up, international marketing and funding are challenges.
- **Lack of Support:** The Indian ecosystem has neither incubation support nor pointers to seek support of leaders such as ISRO for space start-ups.
- **Political and bureaucratic hurdles** limit private space operations in India.
- Low in-house capacity of ISRO restricts them to very few launches in a year. Privatization can offload 30-40% of the work and help them work more efficiently.

Way forward:

- India should have **national space activities legislation** which takes on board all stakeholders.
- A **public-private partnership (PPP) model** can be looked into to realise ISRO's workhorse Polar Satellite Launch Vehicle (PSLV), with a joint venture between ISRO and the private sector.
- In the UK, space ventures are treated as a complement to big organizations and not a competitor. This should be encouraged in India too.
- A **supportive international partner and likeminded local partners** helps to set up a space business.
- The idea should be to let the private industry build their own facilities after gaining enough expertise.
- ISRO has built a space technology park spread over 25 acres in Bengaluru where the entire range of facilities have been set up for use by the industry.

Conclusion:

The private sector already supplies majority of the sub-systems in satellite manufacturing. This can be further scaled up into other activities with proper regulation and partnership of the ISRO and private sector. The country must deregulate the space sector to encourage private enterprise if we are to compete in the new space economy.



Awareness in the fields of IT, Space, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.

What are Spywares? Discuss the problems created by 'Pegasus' spyware in snooping the phones of Indian users recently and also discuss the ways to tackle the same. (250 words)

The hindu

Why this question:

The question is amidst the incidence of the Govt. questioning WhatsApp after spyware was detected for alleged snooping of Indians.

Key demand of the question:

The Centre has sought an explanation from messaging platform WhatsApp after the Facebook-owned company confirmed that some Indian users of its app came under surveillance using an Israeli spyware. One has to explain what are spywares and how should they be handled as a cyber-security threat.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief narrate the recent attack by the spyware.

Body:

Explain the recent incidence of spyware Pegasus.

Discuss the threats such cyber-attacks pose to the national security of the country.

What issues do they pose with respect to privacy safeguards?

Explain the associated risk factors in detail and methods to tackle them.

Conclusion:

Conclude with way forward.

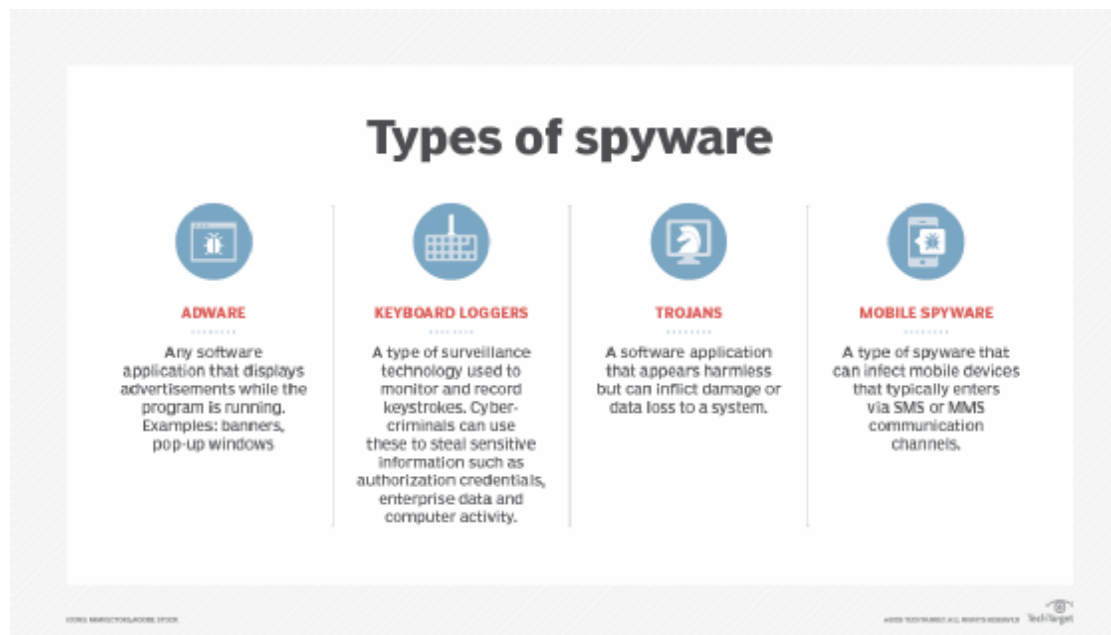
Introduction:

Spyware is software that is installed on a computing device without the end user's knowledge. Any software can be classified as spyware if it is downloaded without the user's authorization. Spyware is controversial because even when it is installed for relatively innocuous reasons, it can violate the end user's privacy and has the potential to be abused.

WhatsApp sued an Israeli firm, the NSO Group in a court for using its platform to spy on journalists and human rights activists worldwide. The surveillance was carried out using a spyware tool called Pegasus, which has been developed by the NSO Group.

Body:

Spyware can be difficult to detect; often, the first indication a user has that a computing device has been infected with spyware is a noticeable reduction in processor or network connection speeds and in the case of mobile devices — data usage and battery life.



Pegasus is spyware that can be installed on mobile devices. It is regarded as one of the “most sophisticated” smartphone spyware. In May 2019, the Pegasus was being used to exploit WhatsApp and spy on potential targets. The spyware named ‘Pegasus’ is developed by the Israeli cyber arms firm NSO in 2016.

Working of Pegasus:

- Pegasus exploited a weakness in WhatsApp’s video-call feature that allowed attackers to inject the spyware on to phones simply by ringing the number of targets’ device. It enters the phone even if the call is not answered.
- Once Pegasus is installed, it can access the targeted users’ private data, including passwords, contact lists, calendar events, text messages, and live voice calls from popular mobile messaging apps.
- It can work on BlackBerry, Android, iOS and Symbian-based devices.



- It can send back the target's private data, including passwords, messages, live voice calls, etc., from popular mobile messaging apps.
- The target's phone camera and microphone can be turned on to capture all activity in the phone's vicinity, expanding the scope of the surveillance.
- Pegasus has the ability to access password-protected devices, being totally transparent to the target, leaving no trace on the device without arousing suspicion in more alert users.
- It has a self-destruct mechanism in case of risk of exposure, and ability to retrieve any file for deeper analysis.

Measures to tackle spywares:

- **Regular Data Backup:** This helps restore the last saved data and minimise data loss. Ransomware also attacks servers; hence it is important to have a backup on a disconnected hard drive or external device on the pre-defined regular basis.
- To prevent infiltration of malware, having password protected tools to identify and filter certain file extensions like ".exe" or ". Zip", are essential. Emails that appear suspicious should also be filtered at the exchange level.
- **User awareness:** Awareness among users needs to be created to avoid opening the unsolicited attachment. Malware is typically designed to mimic identities of people that users interact with on a regular basis either on a personal or professional level.
- **Regular patch and upgrades:** To prevent leaks or vulnerabilities in software, ensure to regularly update the software versions and apply patches released by the vendor. These patches and version are often released to wrestle with known or newly discovered exploits and can prevent known signatures of these malware, Trojans or ransomware to enter the system.
- **Install and run anti-malware and firewall software.** When selecting software, choose a program that offers tools for detecting, quarantining, and removing multiple types of malware.
- The combination of anti-malware software and a firewall will ensure that all incoming and existing data gets scanned for malware and that malware can be safely removed once detected.
- Keep software and operating systems up to date with current vulnerability patches. These patches are often released to patch bugs or other security flaws that could be exploited by attackers.
- Be vigilant when downloading files, programs, attachments, etc. Downloads that seem strange or are from an unfamiliar source often contain malware.

Conclusion:

The Government of India has come up with initiatives like National Cybersecurity policy 2013, CERT-In, Cyber Swachhata Kendra to fight against such cyber threats. Cybersecurity becomes imperative in the wake of Government's push for Digital India.



Explain what is 'IndiGen' project? Discuss how CSIR's 'IndiGen' project will lead to precision medicine and develop its commercial gene testing services? (250 words).

The hindu

Why this question:

The Council of Scientific and Industrial Research (CSIR) recently announced the conclusion of a six-month exercise (from April 2019) of conducting a "whole-genome sequence" of a 1,008 Indians.

Key demand of the question:

The question is straightforward; one must explain the concept of what is 'IndiGen' project and in what way it will help in precision medicine and commercial gene testing services.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In brief explain the context of the question.

Body:

Explain first what is whole genome sequencing?

Discuss How the CSIR enterprise work on the project – Under "IndiGen", the CSIR drafted about 1,000 youth from across India by organizing camps in several colleges and educating attendees on genomics and the role of genes in disease. Some students and participants donated blood samples from where their DNA sequences were collected.

Explain the challenges involved.

Conclusion:

Conclude with significance of such a project.

Introduction:

The **Council of Scientific and Industrial Research (CSIR)** recently announced the conclusion of a six-month exercise (from April 2019) of conducting a "whole-genome sequence" of a 1,008 Indians. The project is part of a programme called "IndiGen" and is also seen as a precursor to a much larger exercise involving other government departments to map a larger swathe of the population in the country.

Body:

IndiGen project:

- The aim of the exercise was twofold:
 - To test if it's possible to rapidly and reliably scan several genomes and advise people on health risks that are manifest in their gene
 - Understand the variation and frequency of certain genes that are known to be linked to disease.
- The project is an adjunct to a much larger government-led program, still in the works, to sequence at least 10,000 Indian genomes.
- Typically, those recruited as part of genome-sample collections are representative of the country's population diversity. In this case, the bulk of them will be college students, both men and women, and pursuing degrees in the life sciences or biology.



- The project aims to reach out to a lot of collegians, educating them about genomics and putting a system in place that allows them to access information revealed by their genome.

Methodology:

- Genomes will be sequenced based on a blood sample and the scientists plan to hold at least 30 camps covering most States.
- **Genome sequencing** is the process of determining the complete DNA sequence of an organism's genome at a single time. This entails sequencing all of an organism's chromosomal DNA as well as DNA contained in the mitochondria (and, for plants, in the chloroplast).
- Every person whose genomes are sequenced will be given a report.
- The participants would be told if they carry gene variants that make them less responsive to certain classes of medicines.
- For instance, having a certain gene makes some people less responsive to clopidogrel, a key drug that prevents strokes and heart attacks.

IndiGen benefits for precision medicine:

- The whole genome data will be important for building the knowhow, baseline data and indigenous capacity in the emerging area of Precision Medicine.
- The benefits include epidemiology of genetic diseases to enable cost effective genetic tests, carrier screening applications for expectant couples, enabling efficient diagnosis of heritable cancers and pharmacogenetic tests to prevent adverse drug reactions.
- The outcomes will have applications in a number of areas including predictive and preventive medicine with faster and efficient diagnosis of rare genetic diseases.
- The outcomes will be utilized towards understanding the genetic diversity on a population scale, make available genetic variant frequencies for clinical applications and enable genetic epidemiology of diseases.

Conclusion:

The CSIR exercise ties into a larger program coordinated by the Department of Biotechnology, which plans to scan nearly 20,000 Indian genomes over the next five years, in a two-phase exercise, and develop diagnostic tests that can be used to test for cancer.

“Conservation of plant genetic resources is the shared responsibility of humanity”, do you agree with the statement? Discuss and give your opinion with suitable justifications. (250 words)

Reference

Why this question:

Union Agriculture Minister Shri Narendra Singh Tomar attended the 8 Governing Body of International Treaty of Plant Genetic Resources for Food and Agriculture (ITPGRFA) in Rome, Italy. Thus the question from the perspective of GS paper III.

Key demand of the question:

Explain the significance of Conservation of plant genetic resources and discuss in what way it is the shared responsibility of humanity.

Directive:



Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief suggest that farming is the backbone of the socio-economy of India, where crop biodiversity is part and parcel of life.

Body:

Explain first the significance of plant genetic resources in general.

Briefly highlight the diversity of plant genetic resources present in the country (provide for some statistics and draw map of India and show depictions for the same).

Then explain in detail why conservation of plant genetic resources is the shared responsibility of humanity.

Conclusion:

Conclude with way forward.

Introduction:

The eighth session of the Governing Body of **International Treaty of Plant Genetic Resources for Food and Agriculture (ITPGRFA)** is being held in Rome, Italy from 11th to 16th November 2019. The Indian Agricultural Minister highlighted the **need for conservation of plant genetic resources** and the uniqueness of Indian Legislation **Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act** to address the related issues. In April 2019, PepsiCo filed a suit against Gujarati farmers by invoking the provisions of the act.

Body:

ITPGRFA also known as Seed Treaty, is a comprehensive international agreement for ensuring food security through the conservation, exchange and sustainable use of the world's plant genetic resources for food and agriculture (PGRFA), as well as the fair and equitable benefit sharing arising from its use. It also recognizes farmers' rights, subject to national laws.

Need for Conservation of plant genetic resources (PGR):

- Plant genetic resources (PGR) are the basic materials that are essential for development of improved crop varieties designed to combine high yield potential with superior quality, resistance to diseases and pests, and also better adaptation. to abiotic stress environments.
- Their continued availability to plant breeders is necessary not only for sustaining advances in crop productivity but also for stabilising production in the country.
- These resources of known or potential use to man constitute a broad spectrum of diverse gene pools representing assemblage of landraces, primitive cultivars, varieties of traditional agriculture as well as wild and weedy relatives of crop plants.
- Recent years have seen an increasing global concern over the loss of genetic resources of crop plants.
- Future progress in crop improvement and our food security depends, to a great extent, on immediate conservation of the rapidly vanishing crop gene resources and their effective utilisation by plant breeders.



- Conserving PGR helps in **maintenance of broad based genetic diversity within each of the species** (i.e., intra-specific genetic diversity) with a known or potential value in order to ensure availability for exploitation by present and future generations.
- Conserving PGR **ensures the future adaptability of cultivars and wild populations**.
- It **preserves data and traits that ensure sustainable agriculture**.
- It **promotes the use of genetic resources in commerce and biotechnology**.
- **Conserves genetic diversity for cultural reasons**.

Indian initiatives for preserving PGR:

- ICAR-National Bureau of Plant Genetic Resources (NBPGR), New Delhi is conserving seed germplasm for long-term conservation (at -20°C) in its National Genebank (NGB).
- NGB has the responsibility of conservation of plant genetic resources for posterity and sustainable use including landraces and traditional varieties which are potential sources of agriculturally important genes.
- At Chang La in the Himalayas, at a height of 17,300 feet, there is a storage facility with over 5,000 seed accessions.
- The vault is a joint venture of the National Bureau of Plant Genetic Resources (under ICAR) and the Defence Institute of High Altitude Research (under DRDO).
- The Govt. of India enacted "The Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act, 2001" adopting sui generis system.

Way forward:

- An understanding of the extent and distribution of diversity in species and ecosystems is pertinent and this can be achieved through efficient survey, inventory, appropriate research, field studies and analysis.
- Sustainable agriculture should be promoted through diversification of crop production and development and commercialization of under-utilized crops and species.
- On-farm management and improvement of plant genetic resources should be supported and this will require integrated approaches combining the best of traditional knowledge and modern technologies.
- More natural reserved areas should be created and those existing should be properly managed, financially supported and an effective enforcement of laws should guard them.
- It is important that this diversity be made more useful and valuable to breeders, farmers, and indigenous and local communities, by providing better and more accessible documentation.
- Public awareness of the value of plant genetic resources through training, seminar and the media should be promoted.

Conclusion:



There is increasing global awareness of the need for conserving genetic resources of crop plants for their current use and for posterity. Future development in the improvement of crops largely hinge on immediate conservation of genetic resources for their effective and sustainable utilization. A vast amount of plant genetic resources are threatened, endangered and some have even gone extinct and it is more prominent in recent times, mostly due to genetic erosion and environmental transformation by anthropogenic effect. In order to meet current global challenges all countries and institutions must as a matter of primary obligation discover, collect and conserve valuable and potentially valuable plant genetic resource and utilize it sustainably.

Internet diffusion can act as a multiplier effect on empowerment of human beings and also for country's growth. Examine the statement in the context of India's digital advancement with suitable best practices. (250 words)

The hindu

Why this question:

The question seeks to examine the multiplier effect that the internet penetration in the country has on the demography.

Key demand of the question:

Explain the multiplier effect in detail, discuss the effect with examples and explain its contributions in different sectors.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief explain the current diffusion of internet in the country.

Body:

Give a brief introduction about the status of digital penetration in India and the importance of it.

Explain the reasons for low penetration and the gap existing between men and women, villages and towns etc.

Suggest steps to be taken in this regard.

Explain the benefits and disadvantages associated.

Conclusion:

Conclude with way ahead.

Introduction:

Internet as part of the history is the most important invention around the world which connects people through phones, satellites and cables. People all over the world have access to it as it is everyday usage, and internet becomes globally real and in demand. The maximum effect of the internet is actually on the daily life of the individuals because indeed there is no aspect of life which is not influenced by the internet and its uses.

Body:

Internet penetration has had a multiplier effect:

- Information technologies have wrought fundamental change throughout society, driving it forward from the industrial age to the networked era. In our world, **global information networks are vital infrastructure.**



- The Internet has changed business, education, government, healthcare, and even the ways in which we interact with our loved ones—it has become one of **the key drivers of social evolution**.
- Online, the conventional constraints of space and time disappear and there is a dizzyingly wide range of communicative possibilities. The impact of social media applications has triggered discussion of the **“new communication democracy.”**
- The **right utilization of Internet power is challenging for governments across the world**. Government expenses are reduced due to providing data and information for people on the government websites. People are taking advantages of Government policies and websites. Any government information and service are easily accessible for the citizens. Using tools such as Right to Information, we can have online access to important government documents.
- The Internet is one of the key factors **driving today’s economy**. Even in a tough macroeconomic framework, the Internet can foster growth, coupled with enhanced productivity and competitiveness.
- The Internet has clearly **impacted all levels of education** by providing unbounded possibilities for learning. I believe the future of education is a networked future. People can use the Internet to create and share knowledge and develop new ways of teaching and learning that captivate and stimulate students’ imagination at anytime, anywhere, using any device.
- The most interesting aspect of the internet influencing our daily lives is the factor of **entertainment**. Entertainment no longer demands your money or expense, today you can just log on the internet in your free time and get involved talking to people of similar interests, or watch movies or play games, it’s all there in the internet.
- The development of information and communication technologies and the wide-ranging effects of globalization are changing what we are, and the meaning of cultural identity. The concepts of space, time, and distance are losing their conventional meanings. **Cultural globalization** is here, and a global movement of cultural processes and initiatives is underway.
- The Internet revolution is not just technological; it also **operates at a personal level**, and throughout the structure of society. The Internet makes it possible for an unlimited number of people to communicate with one another freely and easily, in an unrestricted way.

However, it has its share of problems:

- A key issue surrounding Internet use is **privacy**. Internet users are becoming more sensitive to the insight that privacy is a must-have in our lives. It’s very tough even for the government of various countries to protect user’s privacy.
- The biggest challenge for the society to do mobile banking and cashless transactions. Because the **data is compromised** by such companies and there is no guarantee that you’re safe or not.
- Much of the time, people started to use social media with no real idea of the dangers, and have wised up only through trial and error—sheer accident, snafus, and mistakes. Lately, inappropriate use of social media seems to hit the headlines every day



- Internet has given rise to **cybercrime** of which mostly teenagers and youngsters become the victim. We all hear in our day to day life about these cases for eg. Leaking someone's private clips or pictures on internet just for the sake of jealousy or taking revenge or for hacking.
- The Internet is **creating robotic societies**. A society with hybrid skills doing like, comments but doesn't have feelings and own impact on his/her social shares.
- The Internet is also helping the polarization of the society by dividing the unity of people by **producing communalism and casteism material on the internet**. Producers of communalism and casteism in the society never develop the society.
- If technology can replace a task, we will rely on it rather than exercise our mental faculties. So, the tech giants will give birth to a "reliance economy".

Conclusion:

Today almost all the things are connected and working through the Internet. There should be no doubt that Internet is becoming the engine of every new invention. No matter how bad society is influenced by the internet, but education of people can play a role in right usage of Internet. The role is not defined by algorithms, it is defined by our parents, teachers and after self-analysis.

Conservation, environmental pollution and degradation, environmental impact assessment

Do you think mere amendment of Air (Prevention and Control of Pollution) act, 1981 will aid the fight against pollution in the country? Critically analyse.(250 words)

[Indianexpress](https://www.indianexpress.com)

Why this question:

The article explains that amending and updating the 1981 Air Act will help in the battle against pollution.

Key demand of the question:

One has to explain that Air pollution in India is not simply an environmental problem, but a major public health concern. It impacts all those breathing in the polluted air — children, the elderly, women and men alike. As its concentration worsens in India and statistics grow grimmer, so do our policymakers' reactions.

Directive:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgment.

Structure of the answer:

Introduction:

In brief set the context of the question by highlighting the air pollution concerns being witnessed in the capital.

Body:

Explain that Statistics show that India is in a worse situation compared to its global counterparts. According to Greenpeace, 22 of the world's 30 most polluted cities are in India and Delhi has yet again bagged the position of the world's most polluted capital. These are grim figures, especially when compared to India's neighbours: Five in China, two in Pakistan and one in Bangladesh. In 2018, India was placed in the bottom five countries on the Environmental Performance Index, ranking



177th out of 180 countries, along with Bangladesh, Burundi, Democratic Republic of Congo, and Nepal.

Then explain what the root causes of the situation are.

Discuss most importantly significance of amending the air pollution act.

Conclusion:

Conclude with way ahead.

Introduction:

The Air Quality Index in Delhi has crossed 500, the national capital has officially entered the public health emergency category. Schools have been shut, children are complaining of breathing problems. The state and Central governments are simply indulging in blame-games. This forms the basis of the need for amending the 1981 Air Act and making it more compatible with contemporary India.

Body:

India's air pollution scenario:

- Statistics show that India is in a worse situation compared to its global counterparts.
- According to Greenpeace, 22 of the world's 30 most polluted cities are in India and Delhi has yet again bagged the position of the world's most polluted capital.
- These are grim figures, especially when compared to India's neighbours: Five in China, two in Pakistan and one in Bangladesh. In 2018, India was placed in the bottom five countries on the Environmental Performance Index, ranking 177th out of 180 countries, along with Bangladesh, Burundi, Democratic Republic of Congo, and Nepal.
- Air pollution in India is not simply an environmental problem, but a major public health concern.
- It impacts all those breathing in the polluted air — children, the elderly, women and men alike.
- Recently, the Centre for Science and Environment reported that air pollution kills an average 8.5 out of every 10,000 children in India before they turn five.
- Similarly, the WHO in 2016 reported that pollution has led to the deaths of over 1 lakh children in India.
- Overall, several internationally acclaimed studies have affirmed that life expectancy in India has declined anywhere between two to three years.

A strong legislation will help curb air pollution:

- The Indian government needs to identify the tangible benefits that concrete legislation on air pollution has brought across the world.
- In the United States, the Clean Air Act has proven that public health and economic progress can go together.
- For instance, the aggregate national emissions of the six common pollutants in the USA dropped an average of 73 per cent from 1970 to 2017.



- Through one piece of legislation, the US has challenged multiple sources of pollution, airborne or motor vehicle-led.
- Similarly, after declaring a war on pollution, Chinese cities reduced particulate concentration by 32 per cent in 2018.
- In a country with a human power and technical know-how like India, achieving a better feat is not impossible.
- In recent times, the government has worked on a much hyped “mission-mode” — drafting policies and programmes to alleviate pollution.
- But with little to no legal mandate or a budgetary allocation of as little as Rs 300 crore under programmes such as the National Clean Air Programme, no true enforcement of targets and goals is guaranteed.
- In such dire circumstances with high stakes, higher targets need to be set, penalties need to be stricter, and the mandate needs to be stronger.

Need for amendment of Air Pollution Act:

- There is unanimous consensus amongst many court rulings, Parliament Committee reports, media investigations, and several environmentalists that under the 1981 Air Act, the Pollution Control Boards are presently unable to fulfil their mandate as watchdogs against polluting industries.
- A new bill will plug many loopholes in the 1981 Act and would align the functions and priorities of the Pollution Boards towards reducing the adverse impact of pollution on human health in India.
- India’s pollution liability regime has never prioritised the adverse impact of pollution on health.
- In its present form, India’s Air Act does not mention or prioritise the importance of reducing the health impact of rising pollution.
- This is the first change that a new law on air pollution should bring, protecting health needs to become the central mission that the boards work towards.
- For instance, at any point that the State Boards find evidence of excess air pollution, they should take all measures possible to actively disseminate this information to the masses.
- When the air quality goes from normal to toxic and hazardous, the boards must be empowered to declare public health emergencies, with the power to temporarily shut down all polluting activities.
- While these changes might introduce an additional burden on industries to proactively check their emissions, the additional burden is worth the lives that will be saved as a result.

Need for other actions along with Air Pollution Act:

- It is caused by emissions from vehicles, industries and agriculture, construction dust, and other factors related to household consumption and municipal planning.



- The new law must push Central and state boards to convene joint sittings with a multi-sectoral participation from ministries such as housing, urban development, agriculture and road transport.
- Pollution control boards must be empowered sufficiently to ensure that pollution does not take more lives or hinders the overall progress of India.
- To incentivise the industries to better themselves through environmental compensations, the industries and their respective state boards must be ranked in order of their efficiency and programme delivery.
- The new law on air pollution must give an additional mandate to either a senior minister, such as the minister of environment, forest and climate or the prime minister's office needs to be involved directly.
- Greater public transparency is essential to the success of winning the war on air pollution.

Conclusion:

Breathing clean air is the fundamental right of every Indian citizen. Human health must become a priority when it comes to legislating on air pollution.

The pollution problem in NCR is more complex than it seems on the outside. Critically Analyse. (250 words)

Livemint

Why this question:

Beginning Monday, the odd-even scheme for automobiles plying in Delhi will kick in. Coincidentally, the weekend preceding it saw a steep deterioration in the air quality index or AQI in the city; forcing Environmental Pollution (Prevention and Control) Authority (EPCA) to declare a public health emergency on Friday as a desperate measure to contain the silent killer.

Key demand of the question:

One must bring out the concerns of air pollution problem facing the capital and provide for a critical analysis of what needs to be done to contain the situation.

Directive:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgment.

Structure of the answer:

Introduction:

In brief narrate scenario in the capital with respect to pollution problem.

Body:

Explain the problem in detail – The NCR pollution problem is partly because of the nature of its topography.

Suggest solutions to the issue – Experts have long been making a case for public transport. The assumption among policy planners is that the Metro Rail, has been critical in addressing transport woes of NCR's working population, especially women and is the best solution.

Conclusion:

The only freebie that matters is clear air; and our politicians who always aver the cause of the poor should remember that like income inequality pollution is hardest on those at the bottom of the pyramid.

Introduction:



Delhi Chief Minister tweeted that the city 'has become a gas chamber'. If serious steps are not taken, Delhi may soon face an "air pollution disaster" which London saw 65 years ago. The odd-even scheme for automobiles plying in Delhi has kicked in. Coincidentally, the weekend preceding it saw a steep deterioration in the air quality index or AQI in the city; forcing Environmental Pollution (Prevention and Control) Authority (EPCA) to declare a public health emergency on Friday as a desperate measure to contain the silent killer.

Body:

Air pollution in NCR is due to

Natural factors:

- Low temperature in winter leads to low wind velocity, which reduces the dust dispersal process
- Landlocked cities, no moderate sea effect

Anthropogenic factors:

- **Vehicular emissions:** Increased number of diesel vehicles, huge commuters, absence of integrated transport public infrastructure adds the problem
- The extreme use of crackers during the celebrations has raised the level of pollution in the city.
- **Road dust:** Dust emanating from unpaved roads and peak construction activities causes silicosis.
- **Construction activities:**
- **Industrial vehicles:** Dirty power plants, coal usage in hotels, diesel generators contributes SO₂ and NO_x which can cause major respiratory ailments
- **Waste burning:** Crop residue (stubble) burning in neighbouring states – Punjab, Haryana, Uttar Pradesh transfers pollutants to Delhi.
- **Improper waste management:** Burning of waste at landfills and lack of waste segregation at source adds particulate matter into the atmosphere

Consequences:

- As the Air Quality Index increases, large percentage of the population is likely to experience severe adverse health effects.
- The alarming level of pollution in the city is detrimental for not only people suffering from respiratory illnesses but also for the normal population.
- There is an increase in the number of people who get a recurrent irritative cough, recurrent episodes of sinusitis and more frequent attacks of asthma and chronic obstructive pulmonary disease (COPD)
- Apart from smoke, crackers also release toxic metals in environment which are going to come back to use through food chain.



- According to a new report from UNICEF, about a third of the 2 billion children in the world, who are breathing toxic air, live in northern India risking serious health effects including damage to their lungs, brains and other organs.
- The value of work time lost due to the illness by the patient or the caregiver, or both
- Exposure to vehicular emission or air pollution result in a greatly increased probability of lung cancer

Measures needed:

- Create awareness among the masses by installing LED panels displaying pollution levels
- Preventive measures like hike in parking fees and slashing of metro fares.
- Need for implementing long-term measures as the use of nasal filters or air purifiers can provide short-term relief only.
- Residents must avoid stepping out or doing outdoor activities during the early morning and evening hours.
- Doctors must address school children about air pollution and its hazards.
- CPCB should direct local bodies to check open burning of solid waste and strictly enforce rules related to prevention of emission from construction activities.
- Mechanical sweeping with water wash and vacuum-assisted sweeping of roads to reduce road dust emission.
- There is great potential for making investments in paddy straw-based power plants which can help avoid stubble burning and create employment opportunities.
- The efforts of the MoEFCC, ministry of power, MNRE, MoRTH, MoHUA, MOHFW and a variety of non-governmental partners must come together for dealing with air pollution
- There must be political will for political parties and governments to firstly acknowledge the scale of this health emergency and then work together
- To regulate automobiles –stringent measures are needed. For example, Singapore has decided to stop registration of all new vehicles.

Conclusion:

The only freebie that matters is clear air; and our politicians who always aver the cause of the poor should remember that like income inequality pollution is hardest on those at the bottom of the pyramid.

What do you understand by Chhattisgarh model for disposal of agri-waste? Explain how it offers a solution to the pollution crisis.(250 words)

[Indianexpress](#)

Why this question:

The article explains in what way Chhattisgarh model for disposal of agri-waste offers a solution to pollution crisis.

Key demand of the question:



Explain what is Chhattisgarh model for disposal of agri-waste and in what way it offers a solution to pollution crisis.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In brief highlight the pollution caused owing to stubble burning across the Northern India.

Body:

First discuss what is the Chhattisgarh model for mitigating the harmful effects of stubble burning. Chhattisgarh has undertaken an innovative experiment by setting up gauthans. A gauthan is a dedicated five-acre plot, held in common by each village, where all the unused parali (pairain Chhattisgarhi) is collected through parali daan (people's donations) and is converted into organic fertiliser by rural youth. This provides them a living.

Discuss the benefits of such a process/model.

Conclusion:

Conclude with a positive note that it is a good step forward in mitigating the effects of stubble burning that has led to huge climate crisis in the country.

Introduction:

The pollution caused by burning of Parali (stubble or crop residue) is a unprecedented crisis which has held New Delhi and its citizens to a ransom. The agri-waste burning has not only choked Delhi or there is a 50 per cent rise in respiratory illnesses, be it COPD or asthma cases, in the National Capital Region (NCR) area, but also there is a loss of soil fertility and there is a rise in incidents of cancer in Punjab and Haryana. **Parali can be mixed with cow dung and few natural enzymes under MGNREGA to generate high-grade compost, and also reduce air pollution in North India.**

Body:

Air pollution crisis in NCR:

- Farmers in Haryana and Punjab burn up to 35 million tonnes of parali, which is responsible for significant percentage of Delhi-NCR's air pollution levels.
- One study estimates that crop residue burning released 149 million tonnes of carbon dioxide, nine million tonnes of carbon monoxide, 0.25 million tonnes of sulphur oxides and 1.28 million tonnes of particulate matter.

Chhattisgarh model for disposal of agri-waste:

- In Chhattisgarh, we have already undertaken this innovative experiment by setting up **gauthans**.
- A **gauthan** is a dedicated five-acre plot, held in common by each village, where all the unused parali (paira in Chhattisgarhi) is collected through parali daan (people's donations) and is converted into organic fertiliser by rural youth.
- This provides them a living.
- It involves an integrated regenerative rural development model **of narwa (rivulet regeneration), garuwa (cattle conservation), ghuruwa (composting) and baari (kitchen garden)** through a participatory process using MGNREGA.



- **Role of state Government in the initiative:**

- Farmers cannot do this alone as it involves capital expenditure.
- In Chhattisgarh, the government supports only the transportation of parali from the farm to the nearest gauthan.
- The state has successfully developed 2,000 gauthans.

Importance of recycling in Agriculture:

- Agriculture is a regenerative process, one which recycles.
- What we need is to utilise every product in the process and return it to the soil in one form or another.
- From 35 million tonnes of parali, we can obtain 21 million tonnes of high-grade organic fertiliser.
- The total amount of nitrogen, phosphorous, potassium and sulphur in the 23 million tonnes of parali annually burnt in Northwest India is about seven lakh tonnes, valued at Rs 1,000 crore.
- This apart, organic carbon is also destroyed during stubble burning.
- Thus, parali offers an important source for meeting the nutrient requirements of crops and improving soil health.
- These nutrients also reduce the risk of cancers in Punjab by reducing the levels of carcinogens in soil.

Way forward:

- Supreme Court could constitute a committee consisting of economists, agricultural experts, farmer delegates and bureaucrats to evaluate the parali burning crisis and explore the possibilities of expanding schemes like the MGNREGA to harvesting and composting.
- The state needs to step in and engage already-existing mechanisms like the MGNREGA for this purpose.
- To do this, the Centre needs to allow states to include activities like harvesting and composting in MGNREGA. This has been a longstanding demand of many states.

Conclusion:

A collective intervention using traditional wisdom and local resources and facilitated by sound administrative support can upturn this national problem.

Do you think Kyoto Protocol's emission trading mechanisms could become redundant after 2020? Analyse while presenting your view points on the upcoming challenge of deciding how markets can be deployed in the service of climate.(250 words)

[Indianexpress](https://www.indianexpress.com)

Why this question:

The article discusses that the Kyoto Protocol's emission trading mechanisms could become redundant after 2020. India needs to plan for the changed scenario.

**Key demand of the question:**

One must analyse the possibilities of the mechanism becoming redundant and present opinion about what should be the way ahead to deal with the emissions from the industries.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:**Introduction:**

In brief explain that the next climate conference to be held in Madrid in December has the challenge of deciding how markets can be deployed in the service of climate.

Body:

Discuss first why Most developed countries are strongly opposed to permitting the carryover of CDM projects and their credits into the Paris Pact's mechanisms.

Explain the stand taken by India.

Explain what does one do to help CDM find a place in the post-2020 markets?

Conclusion:

Conclude that CDM has been a useful source of finance to industry and we may build a viable domestic carbon market in future on the foundations of industry interest as well as environmental protection.

Introduction:

The **Clean Development Mechanism (CDM)** refers to a market mechanism for achieving greenhouse gas emissions reduction and is defined in **Article 12 of the Kyoto Protocol** – an international treaty for emissions reductions. CDM is a product of the Kyoto Protocol, is one such market instrument that can help industry as well as climate. Along with China and Brazil, India is a leader in CDM since its inception in 2007.

Body:

A number of small and medium projects in the field of energy efficiency and renewable energy, set up in India in the last two decades, owe their origin to the financing support available from CDM.

Dangers faced by CDM:

- The situation may change in 2021 when market mechanisms mandated under the Paris Agreement come into operation.
- Most developed countries are strongly opposed to permitting the carryover of CDM projects and their credits into the Paris Pact's mechanisms.
- The credits lying unsold with the CDM projects could lose their economic worth.
- Besides, the CDM projects will have to go through the process of validation and registration again with the new mechanism.
- This will involve additional financial and administrative costs.

India and CDM:

- India has about 250 million Certified Emission Reduction (CER) units under CDM issued by the UNFCCC, the global administrator of Kyoto mechanisms.
- The number of CDM projects registered in India is 1,376 (out of total 7,979 globally) and 89 per cent of these projects are still active.



- The demand in EU, which has been the largest market for CDM credits, has declined sharply over the last decade because of regulatory barriers.
- The unrealised value of CDM credits could be in the range of almost \$5 billion — estimated at a very conservative price of US \$20 per unit.
- India stands to lose substantially if the doors on the existing CDM projects and credits are closed in 2020.

Arguments against CDM:

- CDM has failed to demonstrate environmental benefits in addition to the “business as usual” scenario, or provide technological benefits.
- Its transition to new mechanisms will have adverse impacts on carbon prices and investor sentiments in future markets.
- Double counting could compromise global ambition on reducing GHG emissions.
- The argument that a full-scale transition of CDM credits may flood the market and lead to deterioration in the carbon prices in future markets is also over-stretched.

However, the arguments against CDM are not valid because:

- Credits for CDM projects are issued after their compliance with internationally approved criteria is ascertained.
- CDM project proponents should be free to choose available cost-effective technologies as long as the objective of emission reductions is achieved.
- “additionality” in CDM projects should not be judged solely on the criterion of technology; they are also about investments and overcoming market barriers.
- Validation and registration of projects under the new mechanism may take at least three years.
- Assuming that all CDM units available globally till 2020 are traded immediately, they may be fully absorbed by 2024 — as demand for credits for meeting the Paris commitments increases.
- More than 60 per cent of the credits may be used fully even before 2022 if we take into account the demand from airline operators to meet commitments under CORSIA — an emission reduction scheme for international civil aviation effective from 2021.

Conclusion:

A pragmatic assessment of likely gains and losses from competing approaches to CDM transition into new mechanisms is the need of the hour. CDM has been a useful source of finance to industry and we may build a viable domestic carbon market in future on the foundations of industry interest as well as environmental protection.

The annual ozone hole over the Antarctic has been found to be at its smallest since the 1980s. Explain what causes the hole, and what does the small area this year mean in the context of climate protection efforts?(250 words)

[Indianexpress](https://www.indianexpress.com)

**Introduction:**

An “**ozone hole**”, which builds up over the Antarctic region this time of the year, has been found to be the smallest since it was first discovered in the 1980s. This comes just a month after the UN Environment Programme said that the ozone layer was on track to be completely restored within “our lifetime” itself. Over the years, however, that threat has largely dissipated, as the world has banned the production and consumption of most of the “ozone-depleting substances”. However, it will take another 15-45 years for the ozone layer to be fully restored.

Body:

By absorbing the harmful ultraviolet radiations from the sun, the ozone molecules eliminate a big threat to life forms on earth. UV rays can cause skin cancer and other diseases and deformities, in plants and animals.

Causes for Ozone hole:

- The ‘ozone hole’ is not really a hole. It is a region in the stratosphere, directly above Antarctica, where the concentration of ozone has been measured to become extremely low in certain months.
- Depletion is not limited to that area and has happened in other regions of the stratosphere as well.
- A set of special meteorological and chemical conditions that arise over the Antarctica in the months of September, October and November make the problem much more acute there.
- NASA recently reported that this ozone hole, which usually grows to about 20 million sq. km in September, was less than half that size this year, the smallest it has ever been during this time after being discovered.

Reduction of Ozone hole size in terms of climate change efforts:

- **Montreal Protocol**, the 1989 global agreement, organised international consensus on phased elimination of these chemicals. In subsequent years, the agreement has ensured the phase-out of over 90 per cent of these chemicals.
- Two years ago, an amendment to the Montreal Protocol (**Kigali Amendment**) cleared the way for a faster elimination of another set of similar compounds, called hydrofluorocarbons, or HFCs, which were being used as temporary replacements for CFCs.
- Because of its success in eliminating ozone depleting substances, the Montreal Protocol is often cited as a model for the problem of climate change.
- The chemicals that were dealt with by the Montreal Protocol were used in only some specific sectors and their replacements were readily available, even if at a higher cost differential at that time.
- The economic impact of banning these chemicals, and the disruption it caused, was limited to these sectors. Over the years, these industrial sectors have managed a relatively smooth transition.

However, scientists refute that it's due to climate change efforts:



- NASA said that this could have happened because of extraordinarily high temperatures in the stratosphere this year, rather than the ongoing human efforts to contain the ozone depletion.
- Scientists have reported that temperatures in some areas of the stratosphere — usually over 100 degrees below zero — were 30° to 40°C higher than normal in September this year.
- At least two such extraordinary warming of the stratosphere has been observed in the past, and on both those occasions the ozone hole was also measured to be smaller than usual.

Conclusion:

Climate change, caused by greenhouse gas emissions, is a much more complex, and all-pervasive, problem. The emission of carbon dioxide happens from the most basic of all activity — production and consumption of energy. All other activities require energy to drive them, and therefore there is no escaping carbon dioxide emissions. Even the so called renewable energies have a carbon footprint. Reduction in carbon dioxide emissions affects economic activity and, in turn, the living standards of people. That is why climate change agreements like the Kyoto Protocol could achieve very little till now, while Paris Agreement faces an uphill task.

What is eco-anxiety? Discuss the causative factors of it and suggest solutions to overcome the same. (250 words)

The hindu

Why this question:

The article explains the new concept of eco-anxiety in detail.

Key demand of the question:

Explain what do you understand by eco-anxiety, what are its causative factors and in what way can it be overcome.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief define what eco-anxiety is; The feeling of being overwhelmed by the challenges of climate change and the fear about the state of the environment.

Body:

Discuss the concept in detail – eco-anxiety is the helplessness that makes us see ourselves as just one insignificant entity on the planet, unable to reverse the crisis. It is also the sense that no matter how hard we work, nothing will ever be enough.

One can use the case study of air pollution menace that the capital Delhi is facing and causing anxiety among people and making them insecure.

Suggest what needs to be done and how can one overcome this anxiety.

Conclusion:

Conclude that making climate change an integral and crucial factor in our lifestyle habits and consumption patterns can prove to be a key to the problem.

Introduction:

Eco-anxiety is the feeling of being overwhelmed by the challenges of climate change and the fear about the state of the environment. It is the helplessness that makes us see ourselves as just one



insignificant entity on the planet, unable to reverse the crisis. It is also the sense that no matter how hard we work, nothing will ever be enough. To feel powerless against a supposedly impending doom shoots up stress levels and causes anxiety, say medics. In 2017, the American Psychological Association referred to this condition as Eco-anxiety.

Body:

Causative factors:

- **Climate change:** The World Health Organisation regards climate change as “the greatest threat to global health in the 21st Century”.
- **Unprecedented and Extreme weather events** is a risk factor for mental illness, particularly in rural areas which are being hit the hardest by **unseasonal drought, fires and floods**.
- **Long-term environmental changes, including once fertile land turning to desert, erosion of soil and coastlines, and sea level rise**, are predicted to result in **large-scale displacement**, a major risk factor for mental illness.
- Many thousands of people around the world are **displaced** from their homes as a result of climate events, putting them at perhaps even higher risk of mental illness.
- The **existential dread of what the future holds** in the face of unmitigated climate change is having documented impacts on their mental health.
- A less obvious impact arises from the strong connection **between nutritional status and mental health**. Climate-related impacts on agriculture lead to reduced availability of nutritious foods, and poor nutritional intake can affect mental health.

Solutions:

- **Climate change adaptation strategies** aimed at **strengthening communities**, particularly rural communities most severely affected by drought.
- It will also be important to **invest in areas** where mental health services are under-resourced, which are often the rural areas where the mental health effects of climate change are likely to be most severe.
- **Public awareness** must be generated through the tireless work of advocacy groups and purposeful media reporting of farmers’ personal stories of distress.
- **Relaxation exercises** through yoga and meditation are the best sustainable options for a life with low stress.
- **Make climate change a factor in the decisions** you make around what you eat, how you travel, and what you buy (Lifestyle habits).
- Increasing awareness of the mental health effects of climate change across the community, private, and government sectors.
- Demand that politicians and companies make it easier and cheaper to do the right thing for the climate.

Conclusion:



There will be no single solution to address the mental health impacts of climate change; a broad perspective and a range of actions will be necessary. As the climate crisis continues to unravel in Australia and globally, this will require strong leadership and some innovative thinking.

“Our thirst for more water is making the ocean saltier”, in the light of the above statement discuss increasing salinity as one of the most important environmental issues of the 21st century. (250 words)

Reference

Why this question:

The article brings out the alarming water crisis facing the world and more so Specifically the drying of oceans due to increasing trends of de-salinization of ocean waters.

Key demand of the question:

Discuss the issue in detail and bring out the concerns associated and explain what steps need to be taken to overcome and mitigate the challenges.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Explain first the problem.

Body:

Discuss that, regions without enough drinking water often turns to desalination, the process of removing salt from seawater to make it drinkable. But researchers are now worrying that the process' salty byproducts could wreak havoc on the ocean's delicate ecosystems.

Explain what the crux of the issue is, highlight the contributing factors etc.

Discuss the potential consequences of the problem.

Conclusion:

Conclude with solutions to address the issue and emphasize on the need to have multi-faceted approach.

Introduction:

According to a U.N. backed study, desalination plants across the world produce highly salty waste water and toxic chemicals that are damaging the environment. This study was part of research into how best to secure fresh water for a rising population without harming the environment.

Desalination plants around the world are pumping out far **more salt laden brine** than previously believed. **Brine, water comprising about 5% salt, often includes toxins such as chlorine and copper used in desalination. By contrast, global seawater is about 3.5% salt.** The brine **raises the level of salinity** and poses a major risk to ocean life and marine ecosystems.

Body:

Desalination is the process of removing salts from water to produce water that meets the quality (salinity) requirements of different human uses. Seawater desalination can extend water supplies beyond what is available from the hydrological cycle, providing an “unlimited”, climate-independent and steady supply of high-quality water.

Reasons for increase in desalination plants:

- The “conventional” sources of water such as rainfall, snow-melt and river runoff captured in lakes, rivers, and aquifers are no longer sufficient to meet human demands in water-scarce areas.



- This is in direct conflict with Sustainable Development Goal (SDG) 6, aimed at ensuring the availability of clean water for current and future generations.
- While water demand mitigation approaches such as water conservation and improved efficiencies can somewhat close the water demand and supply gap, these approaches must be combined with supply enhancement strategies in order to combat water scarcity.
- Among the water supply enhancement options, desalination of sea-water and highly brackish water has received the most consideration and is increasingly seen as a viable option to meet primarily domestic and municipal needs.
- More than half the brine comes from four middle eastern countries. These are Saudi Arabia, the United Arab Emirates, Kuwait and Qatar, with Saudi Arabia alone responsible for 22% of the effluent.

Challenges posed:

- Since brine is denser than seawater, it **sinks to the seafloor and disrupts vibrant communities of life**, which find themselves wanting far less salt and far more oxygen.
- The brine reject tends to **create a sort of niche microhabitat with higher levels of salinity** around areas where they are let out.
- Brine reject from the plant is often let out directly onto the beaches and near coastlines, thus **eroding the coastline** and the livelihoods of locals, in addition to **turning the groundwater salty**.
- There is an increase in the temperature of this zone of the sea, together they **decrease the dissolved oxygen level**, which is called **hypoxia** and that impacts the aquatic life in that zone.
- **Hypoxia** often leads to the formation of dead zones in the oceans. These zones have quadrupled since 1950, mainly as a result of climate change. Now the excess salt is adding to these problems.
- Desalination requires **large amount of energy to process seawater**, which is met by burning fossil fuels contributing to global warming.
- Compounding the problem is the ongoing expansion of desalination as more and more countries turn to the technology in the face of climate change which is exacerbating water shortages.

Way forward:

- Desalination plants could dilute their leftover water with freshwater that's clean enough to dump back into the ocean, but not fit to drink.
- Brine is rich in salt content which can be harnessed for extraction of salt by setting up adequate infrastructure near desalination plants
- Instead of flushing brine near coastal areas, it can be channelized and stored underground or piped deep into ocean.



- Harnessing of sea water resources should be included in **the draft National Water Policy framework** released in 2016, with legal safeguards and provisions for management of desalination plants.
- Water rich states like Tamil Nadu receive ample rainfall from the monsoons and might not need large scale desalination plants.
- Setting small viable plants catering to small areas like individual villages using a different desalination technology called **electrodialysis**, powered by solar panels, could provide enough clean, palatable drinking water to supply the needs of a typical village.

Conclusion:

Clearly we have some kinks to work out in the desalination process. And with four billion people now facing water scarcity, we can't afford to waste any time in sorting them out. To meet drinking water needs of cities, conserving and protecting lakes and wetlands is a cheaper and environmentally better option than desalination.

The depleting lake resources lead to not only disturbed hydrology but also loss of local ecology. Analyse with suitable examples. (250 words)

Indianexpress

Why this question:

The article presents a detailed case study of deteriorating ecology at Sambhar Lake.

Key demand of the question:

One must analyse the impact of deterioration of lakes and their effect on the ecology and hydrology.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

In brief highlight the case of Sambhar lake.

Body:

Such answers are best explained with the use of a case study and in this question one can take hints from the article and discuss the case of Sambhar lake and highlight the issues concerning the local ecology and hydrology.

Highlight the need to prevent such depletion of resource, discuss the causative factors in detail and the effect of it.

Conclusion:

Conclude by suggesting solutions to address the problems.

Introduction:

Wetlands are water logged areas like swamps, lakes, salt marshes which have high significance in Environmental sustainability. India has a wealth of wetland ecosystems distributed in different geographical regions. As they support a variety of plant and animal life, biologically they are one of the most productive ecosystems. Over the last 10 days, thousands of migratory birds have been found dead at Sambhar Lake.

Body:

Threats posed due to depleting lake resources:

- **On hydrology:**



- Construction of canals and diversion of streams and rivers to transport water to lower arid regions for irrigation has altered the drainage pattern and significantly degraded the wetlands of the region.
- Might lead to increased greenhouse gases such as methane which tend to be trapped in wetlands.
- Sea water encroachment leading to reduction in availability of drinking water.
- Increased Flood incidents as wetlands will not be able to act as cushion.
- Increased erosion.
- **On local ecology:**
 - Habitat of large no. of flora and fauna will be affected. For example: Migratory birds like Pelicans.
 - Many wading birds and waterfowl like egrets, herons and cranes nest in wetlands. Wetlands also provide food and shelter for mammals.
 - They act as natural filters and help remove a wide range of pollutants from water, including harmful viruses from sewage and heavy metals from industries.
 - Mangrove forests are valued for production of fish and shell-fish, live-stock fodder, fuel and building materials, local medicine, honey and bees-wax and for extracting chemicals used in tanning leather, farming and fisheries production have replaced many mangrove areas.

Measures taken:

- **Ramsar Convention:** The convention is named after Ramsar in Iran in which the convention was ratified in 1971. The convention is aimed at augmenting national action and international cooperation for the conservation and wise use of wetlands and their resources.
- India is a signatory to the convention. So far, 27-sites have been designated as Wetlands of International Importance (Ramsar Sites) and 6 more are under the process of being designated.
- **National Wetland Conservation Programme (NWCP):** It was launched in 1985 to enable conservation and wise use of wetlands in the country so as to prevent their further degradation.
- **The Central Wetlands (Conservation and Management) Rules:** They were notified for the first time in 2010 for better management and regulation of wetlands across the country. It saw the formation of Central Wetlands Regulatory Authority (CWRA) whose term ended on 31 March 2015 and it wasn't reconstituted since then.
- **National Environment Policy 2006:** Recognising the importance of wetlands, it calls for developing a national inventory of such wetlands and implementing a wide spectrum of policies and plans for wetland conservation and their environmental impact assessment (EIA).
- **National Plan for Conservation of Aquatic Ecosystems (NPCA):** It was unveiled in 2015 to provide for policy framework and support to State Governments for integrated management



of wetlands. This initiative was launched by merging two separate Centrally Sponsored Schemes (CSS), namely the National Wetlands Conservation Programme (NWCP) and the National Lake Conservation Plan (NLCP).

- **Capacity Building:** in order to increase the capacity of wetland managers, up gradation of the existing Wetland Research and Training Centre of Chilika Development Authority at Barkul, Odisha into the National Capacity Development Centre for Wetlands is under consideration.

Way forward:

- Educate and communicate society at different levels (managers, community leaders, decision makers, public, children and youth, etc.) on the importance to preserve wetlands ecological integrity highlighting this attribute as a key to maintain healthy ecosystem services
- Stimulate research and knowledge on how sustainable use of renewable natural resources can foster more resilient wetlands
- Promote the conservation and enhancement of wetlands biologic biodiversity and habitat structure
- Promote an ecosystem-based approach to support wetlands management and planning policies, including stakeholder participation and suitable governance processes.
- Relate wetlands conservation with incoming climate changes in different world areas.
- Encourage specialist group participants to stimulate partnerships, collaboration and networking that address problems and visions related to wetlands conservation at large scale and transboundary monitoring.
- Provide guidance and technical skills to managers and other stakeholders (NGOs, CBOs, indigenous and local communities, etc.) interested in assessing and monitoring wetlands and their resources.

The growing intensity of wildfires and their spread to new corners of the globe raise fears that climate change is exacerbating the dangers. Explain how the recent reports commemorate the above fact. (250 words)

Indianexpress

Why this question:

As the leaders of the world's nations assemble in Madrid for the 2019 United Nations Climate Change Conference (COP25) beginning December 2, recent news on the global fight against climate change has been consistently disappointing.

Key demand of the question:

Discuss the growing intensity of wildfires and their spread to new corners of the globe raise fears that climate change is exacerbating the dangers.

Quote the significance of the reports highlighting the same.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:



In brief narrate the coming of recent reports that have highlighted the alarming situations across the world.

Body:

The United Nations Environment Programme (UNEP) flagship Emissions Gap Report, which went online on Tuesday (November 26), said in its executive summary: "The summary findings are bleak. Countries collectively failed to stop the growth in global GHG emissions, meaning that deeper and faster cuts are now required."

Despite scientific warnings and political commitments, GHG emissions continue to rise, including by China and the United States, the two biggest polluters.

GHG emissions have risen at a rate of 1.5 per cent per year in the last decade, stabilizing only briefly between 2014 and 2016.

Although the number of countries announcing net zero GHG emission targets for 2050 is increasing, only a few countries have so far formally submitted long-term strategies to the UNFCCC.

Discuss what needs to be done.

Conclusion:

Conclude with way forward.

Introduction:

The **National Institute of Disaster Management (NIDM), India** defines forest fire as an unclosed and freely spreading fire that consumes the natural fuels. When a fire burns out of control it is known as Wild Fire. The **Sentinel-3 World Fire Atlas** showed that, compared to August 2018, there were almost five times as many wildfires across the world in August 2019. This has led to increased GHG emissions across the globe. The collective failure of the global fight against climate change and the countries to stop the growth in global GHG emissions gains significance as the leaders of the world's nations assemble in Madrid for the 2019 United Nations Climate Change Conference (COP25)

Body:

Findings from the various climate reports:

▪ **The Emissions Gap Report by The United Nations Environment Programme (UNEP):**

- Despite scientific warnings and political commitments, GHG emissions continue to rise, including by **China and the United States**, the **two biggest polluters**.
- GHG emissions have risen at a rate of 1.5 per cent per year in the last decade, stabilizing only briefly between 2014 and 2016.
- Total GHG emissions, including from land-use change, reached a record high of 55.3 GtCO₂e [gigatonnes (thousand million tonnes) of carbon dioxide equivalent] in 2018
- Although the number of countries announcing net zero GHG emission targets for 2050 is increasing, only a few countries have so far formally submitted long-term strategies to the UNFCCC.
- The emissions gap is large. In 2030, annual emissions need to be 15 GtCO₂e lower than current unconditional NDCs [Nationally Determined Contributions; the heart of the 2015 Paris Agreement] imply for the 2°C goal, and 32 GtCO₂e lower for the 1.5°C goal.
- Dramatic strengthening of the NDCs is needed in 2020. Countries must increase their NDC ambitions threefold to achieve the well below 2°C goal and more than fivefold to achieve the 1.5°C goal.

▪ **World Metrological Organization:**

Telegram: <https://t.me/insightsIAStips>

Youtube: <https://www.youtube.com/channel/UCpocbcX9GEIwaile4HLjwA>

Facebook: <https://www.facebook.com/insightsonindia>



- The emissions of carbon dioxide, methane, and nitrous oxide — all major greenhouse gases — have increased in the atmosphere since the middle of the 18th century.
- **The Production Gap Report by UNEP:**
 - Governments are planning to produce about 50% more fossil fuels by 2030 than would be consistent with limiting warming to 2°C and 120% more than would be consistent with limiting warming to 1.5°C”.
 - The production gap is the largest for coal and by 2030, countries plan to produce 150% (5.2 billion tonnes) more coal than would be consistent with a 2°C pathway, and 280% (6.4 billion tonnes) more than would be consistent with a 1.5°C pathway.
 - Oil and gas are also on track to exceed carbon budgets as countries continue to invest in fossil fuel infrastructure that “locks in” oil and gas use.
 - The effects of this lock-in widen the production gap over time, until countries are producing 43% (36 million barrels per day) more oil and 47% (1,800 billion cubic metres) more gas by 2040 than would be consistent with a 2°C pathway.

Measures needed to tackle wildfires:

- The previous UNFCCC COP meetings have not hammered out the final rules on implementing the Paris climate accord. This should be finalized at COP25 in Madrid.
- At the national level, a cohesive policy or action plan should be formulated to set forth the guiding principles and framework for FFPM. The policy and programmes for forest fire management should incorporate the dimension of climate change
- Forest fire prevention and management practices used by state forest departments also need to be strengthened
- Incorporate Forest Fire Prevention and Management (FFPM) in existing policy and planning documents
- Establish National Forest fire Knowledge Network
- Capacity building of forest officials for better use of early warning systems
- Assess risk and prepare vulnerability and risk maps
- Document national and international good practices and utilise them for making forest fire management more effective and practical
- Increase community awareness

Conclusion:

The current increase in extreme fires in some regions is part of a global ecosystem shift driven by human-caused global warming. To minimize that risk as much as possible, very strong climate policy focussing on reducing the carbon emissions must be implemented.



The importance of Indigenous traditional knowledge can be applied to urban environments for sustainable ecosystem and future building structures. Elucidate. (250 words)

Indianexpress

Why this question:

The article brings out a recent research that has investigated the jing kieng jri or living root bridges structures and proposed to integrate them in modern architecture around the world, and potentially help make cities more environment-friendly.

Key demand of the question:

One must explain the significance that Indigenous traditional knowledge holds in ensuring sustainable ecosystem and future building structures.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In brief discuss the importance of traditional techniques, knowledge and practices.

Body:

Explain in detail with suitable examples across the country how traditional indigenous techniques can help and aid in forming a sustainable and viable ecosystem.

Take hints from the article and present the case of Meghalaya's root bridges built by the local tribes and in what way they are an amusement of traditional knowledge and technique.

Conclusion:

Conclude with significance of such knowledge.

Introduction:

Traditional knowledge (TK) refers to the knowledge, innovations and practices of indigenous and local communities around the world. Developed from experience gained over the centuries and adapted to the local culture and environment, traditional knowledge is transmitted orally from generation to generation. It tends to be collectively owned and takes the form of stories, songs, folklore, proverbs, cultural values, beliefs, rituals, community laws, local language, and agricultural practices, including the development of plant species and animal breeds.

The significance of traditional knowledge:

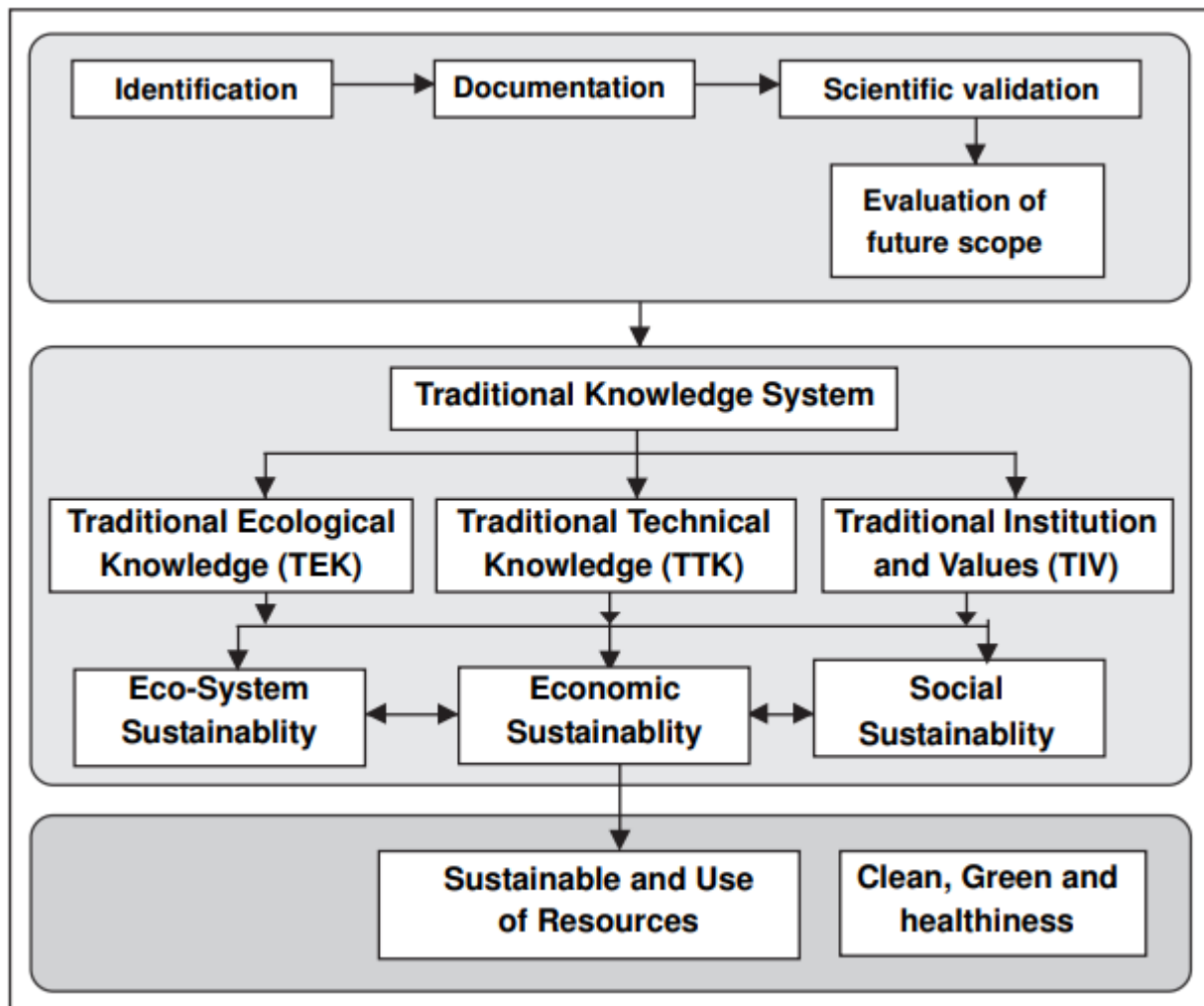
- Traditional knowledge (TK) is integral to the identity of most local communities. It is a key constituent of a community's social and physical environment and, as such, its preservation is of paramount importance.
- Attempts to exploit TK for industrial or commercial benefit can lead to its misappropriation and can prejudice the interests of its rightful custodians.
- In the face of such risks, there is a need to develop ways and means to protect and nurture TK for sustainable development in line with the interests of TK holders.
- The preservation, protection and promotion of the TK-based innovations and practices of local communities are particularly important for developing countries.
- Their rich endowment of TK and biodiversity plays a critical role in their health care, food security, culture, religion, identity, environment, trade and development. Yet, this valuable asset is under threat in many parts of the world.



- There are concerns that this knowledge is being used and patented by third parties without the prior informed consent of TK holders and that few, if any, of the derived benefits are shared with the communities in which this knowledge originated and exists.
- Such concerns have pushed TK to the forefront of the international agenda, triggering lively debate about ways to preserve, protect, further develop and sustainably use TK.
- Documenting and digitizing TK-related information in the form of a TKDL is proving to be an effective means of preserving TK and of preventing its misappropriation by third parties. India is a pioneer in this field.

Examples for Indigenous traditional knowledge practices:

- **Traditional Water harvesting practices:** There are many age-old-practices of harvesting water in the country, basically to collect rainwater, restore surface flow of water, ground water recharging, etc. These are based on simple technology and defined management principles
- **Traditional Housing - a reflection of STI:** Usually these are called Vernacular Architecture, which is an architectural style and design based on local needs, availability of construction materials and reflecting local traditions. Originally, vernacular architecture relied on the design skills and tradition of local builders/ skilled labours
- **Traditional agricultural practices:** In many areas of the country, traditional agricultural practices are still considered important. These practices are followed in selection of crop varieties, land selection, land preparation, soil fertility management, pest and disease management, irrigation, harvesting, post-harvest management, seed preservation, etc.
- **Weather Forecasting/ Prediction:** There are many methods of weather prediction practiced by the farmers in different parts of the country. *For example, farmers in Himachal Pradesh believe that if the honeybee flies toward northern hill there will be no rainfall, if they fly towards south there will be good rainfall.*
- **Traditional practices in animal husbandry:** Traditional knowledge regarding animal husbandry can be considered as old as domestication of various livestock species. But these practices are in vogue throughout rural India and those are documented little and hence, there are possibilities of eroding out of these knowledge systems. *For example, traditional practice of the feeding includes crop residues like straw, stalks, stoves, tops and crop thrush like wheat, paddy straw, etc as well as crop by-products that includes Bran, Husk, straw of Wheat, Rice, Bajra and Maize.*



Indigenous traditional knowledge holds in ensuring sustainable ecosystem and future building structures:

- New research investigates the jing kieng jri or living root bridges structures and proposes to integrate them in modern architecture around the world, and potentially help make cities more environment-friendly.
- Researchers from Germany investigated 77 bridges over three expeditions in the Khasi and Jaintia Hills of Meghalaya during 2015, 2016 and 2017. Taking into account structural properties, history and maintenance, morphology and ecological significance, the study, published in the journal Scientific Reports, suggests that the bridges can be considered a reference point for future botanical architecture projects in urban contexts.
- The findings relating to the traditional techniques of the Khasi people can promote the further development of modern architecture
- they are “not planning to create new living bridges for contemporary cities” right away, the researchers believe this extraordinary building technique can help facilitate “better adaptation to the impacts of climate change”.



- We can see a great potential to use these techniques to develop new forms of urban green in dense cities,”
- By understanding the growth history, we can learn how long the bridge has taken to grow to its current state and from there design future growth or repairs, or growth of other bridges,”
- A root bridge uses traditional tribal knowledge to train roots of the Indian rubber tree, found in abundance in the area, to grow laterally across a stream bed, resulting in a living bridge of roots.
- The process begins with placing of young pliable aerial roots growing from *Ficus elastica* (India rubber) trees in hollowed out Areca catechu or native bamboo trunks.
- These provide essential nutrition and protection from the weather, and also perform as aerial root guidance systems.
- Over time, as the aerial roots increase in strength and thickness, the Areca catechu or native bamboo trunks are no longer required.
- What is crucial for a root bridge to survive is the development of an ecosystem around it. “Specifically the entire biology, the entire ecosystem, and the relationship between the people and the plants, which have, over the centuries, kept it going,”
- Architectural structures made of *Ficus elastica* plants — is sound in urban environments. This is because of the robustness of the plant itself,”
- Traditional knowledge systems are today being gradually replaced with modern lifestyle preferences and unsustainable development practices. ***For instance, traditional architecture is fast becoming extinct due to the emergence of concrete structures; hydraulic technologies are being replaced by a network of pipes and hand pumps; traditional medicinal systems have given way to allopathic treatment; and, traditional metallurgy has been wiped out by non-stick cookware.***

Way forward:

- To ensure that indigenous and local communities obtain a fair and equitable share of the benefits arising from the use and application of their traditional knowledge;
- To ensure that private and public institutions interested in using such knowledge obtain the prior informed approval of indigenous and local communities;
- To regulate how impact assessments are carried out regarding any proposed development on sacred sites or on land and waters occupied or used by indigenous and local communities; and
- To assist Governments in the development of legislation or other mechanisms to ensure that traditional knowledge, and its wider applications, is respected, preserved, and maintained.



Disaster and disaster management.

India being one of the most flood affected nations in the world requires strong and healthy coordination between Centre and States for long term flood management.

Analyse. (250 words)

Financial Express

Why this question:

The article highlights the fact that Floods constitute 52% of all natural disasters in India. Thus the question aims to assess the need and significance of coordination between Centre and States for long term flood management in the country.

Key demand of the question:

One must explain the importance of coordination between Centre and States for long term flood management.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

In brief quote data suggesting the flood scenario in the country.

Body:

Explain that As per the National Emergency Response Centre (NIDM), 1,614 people were killed and 1.8 million displaced (as on September 25, 2019) in 14 states. Widespread floods have also damaged crops, houses and infrastructure.

India is one of the most flood-affected nations in the world, after Bangladesh. Floods constitute 52% of all natural disasters in India, and the costliest as well, with over 63% of all damages attributed to it. Between 1980 and 2017, 70,901 people were killed, 1,395 million affected, and 56 million houses damaged due to floods.

Discuss the causative factors, suggest what methods are required to overcome them and highlight the importance of healthy relations between centre and state to overcome the same.

Conclusion:

Conclude with way forward.

Introduction:

In an unnerving reminder of last year's devastating floods, **Kerala's** worst in about 100 years, incessant precipitation has deluged many districts, causing havoc, snapping communication lines and claiming several lives. Rains have battered **Karnataka and Maharashtra**, too, leaving many dead and several missing. Meanwhile, dramatic visuals from **Madhya Pradesh, Rajasthan and Gujarat** have revealed widespread distress. Parts of **Bihar and Assam** are also reeling under torrential rainfall, with a large number of people left battling grim circumstances. As per the National Emergency Response Centre (NIDM), 1,614 people were killed and 1.8 million displaced (as on September 25, 2019) in 14 states. Widespread floods have also damaged crops, houses and infrastructure.

Body:

Flood devastation in India:

- India is one of the most flood-affected nations in the world, after Bangladesh.



- Floods constitute 52% of all natural disasters in India, and the costliest as well, with over 63% of all damages attributed to it.
- Between 1980 and 2017, 70,901 people were killed, 1,395 million affected, and 56 million houses damaged due to floods.
- The economic losses due to this destruction stood at ₹3,686,340 million, which translates to 0.43% of GDP.
- The damages translate to 2.68% of the Centre's total expenditure every year.
- The average annual flood damage as a percentage of GSDP is the highest in Himachal Pradesh (2.35%), followed by Andhra Pradesh (1.62%), Odisha (0.9%) and Bihar (0.85%), with the lowest damage in Maharashtra (0.03%).

Measures needed for flood management:

- Policy measures:
 - State governments should focus on economic development by building flood-resilient infrastructure—monitoring embankments of key flood-prone rivers and improving river connectivity, apart from construction of canals, assumes significance.
 - Suitable techniques and methods should be in place to predict accurate rainfall, especially in low-lying areas, and appropriate rainfall warning systems be installed in vulnerable areas.
 - Long-term flood management requires a healthy coordination between the Centre and states. Unless concerted efforts are undertaken in these areas, the deluge will become a regular event.
- The dire need is for **watershed-based master planning and development legislated guidelines** for each major river basin, especially those that impact densely populated settlements.
- There must be a demarcation of ecologically sensitive zones using existing village survey maps and public participation.
- There must be clear land use plan for these zones specifying flood plains, protected forest areas, agricultural and plantation zones, with details of the types of crops, building usages permitted and the density of buildings permitted.
- To compensate owners in non-buildable areas, there must be strategies such as Transfer of Development Rights to buildable zones in cities.
- The master plan should focus on permitting only ecologically sensitive building strategies for these areas by proposing new construction techniques.
- Controlled development can be proposed using building height rules, floor area ratio control, and restrictions on cutting and filling natural land.
- Strategies to make sure that all infrastructure projects are carried out in a scientific manner with strict scrutiny must be specified.



- This should include roads built on difficult terrain and all public infrastructure projects in wetlands and the High Ranges.
- Copenhagen in Denmark, which faces a similar problem of repeated flooding, has come up with active cloudburst responsive planning as a process to develop the city in line with climate change needs.

Conclusion:

A complete overhaul of processes to hire technical expertise which allows access to necessary skills, and with a long-term vision of capacity building of local agencies, is the way forward. Long-term flood management definitely requires healthy coordination between Centre and states.

Linkages between development and spread of extremism.

India's claims to being a legitimate power in cyberspace have come under doubt following two recent revelations – the breach at Kudankulam Nuclear Power Plant and the recent WhatsApp spyware attack. Do you think these instances point out to a weakening of India's cyber sovereignty? Critically analyse. (250 words)

The hindu

Why this question:

The recent incidents of cyber security infringement cast serious doubts on the Indian state's claims to being a legitimate power in cyberspace, both due to the vulnerability of its critical information infrastructure and blatant disregard for the fundamental rights of its citizens online. Thus the question.

Key demand of the question:

One has to critically analyse the context of India's weakening cyber sovereignty, what has gone wrong and what needs to be done to tackle the situation.

Directive:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgment.

Structure of the answer:

Introduction:

Define what cyber sovereignty is.

Body:

Explain first the two recent incidents – The malware attack at the Kudankulam Nuclear Power Plant and the recent spyware attack by Pegasus on WhatsApp.

Discuss the glaring issues highlighted by these cases.

Explain in what way the apparent absence of robust cybersecurity capability is a serious cause for concern.

Suggest solutions and way forward.

Conclusion:

Conclude that If the Indian state plans to leverage offensive and defensive cyber capabilities, which are of course it's right as a sovereign power, it needs to get serious about cybersecurity.

Introduction:

The two recent incidents of cyber-attacks cast serious doubts on the Indian state's claims to being a legitimate power in cyberspace, both due to the vulnerability of its critical information infrastructure



and blatant disregard for the fundamental rights of its citizens online. In essence, the government has signalled that it has no qualms about weakening the security of civilian digital platforms, even as it fails to secure its strategic infrastructure from sophisticated cyberattacks.

Body:**Recent incidents of cyber-attacks in India:**

- On October 28, a user on VirusTotal identified a DTrack data dump linked with the Kudankulam Nuclear Power Plant — indicating that a system (or more) in the plant had been breached by malware. The Nuclear Power Corporation of India Ltd (NPCIL) confirmed the breach, doing a volte-face after an initial denial.
- Separately, WhatsApp sued the Israel-based NSO Group for the use of its 'Pegasus' spyware on thousands of WhatsApp users in the lead-up to the general elections.

Yes, it points to India's weakening of cyber-security due to the following issues:

- Contrary to what the NPCIL may claim, air-gapped systems are not invulnerable. Stuxnet crossed an air gap, crippled Iran's nuclear centrifuges and even spread across the world to computers in India's critical infrastructure facilities.
- It is also not enough to suggest that some systems are less important or critical than others — a distributed and closed network is only as strong as its weakest link.
- With the Indian military announcing that it will modernise its nuclear forces, which may include the incorporation of Artificial Intelligence and other cyber capabilities, the apparent absence of robust cybersecurity capability is a serious cause for concern.
- The surveillance of Indian citizens through WhatsApp spyware in the lead-up to the general elections highlights the vulnerability in the field of cybersecurity.
- It is in line with the government's ceaseless attempts at enforcing the "traceability" of end-to-end encrypted messages on WhatsApp. A backdoor, once opened, is available to any actor — good or bad.
- To use it without oversight belies reckless disregard for the integrity of electronic information.

However, Government has taken up multiple steps to secure the cyber-space:**Information Technology Act, 2000**

- The act regulates use of computers, computer systems, computer networks and also data and information in electronic format.
- The act lists down among other things, following as offences:
 - Tampering with computer source documents.
 - Hacking with computer system
 - Act of cyber terrorism i.e. accessing a protected system with the intention of threatening the unity, integrity, sovereignty or security of country.
 - Cheating using computer resource etc.

**Strategies under National Cyber Policy, 2013**

- Creating a secure cyber ecosystem.
- Creating mechanisms for security threats and responses to the same through national systems and processes.
- National Computer Emergency Response Team (CERT-in) functions as the nodal agency for coordination of all cyber security efforts, emergency responses, and crisis management.
- Securing e-governance by implementing global best practices, and wider use of Public Key Infrastructure.
- Protection and resilience of critical information infrastructure with the National Critical Information Infrastructure Protection Centre (NCIIPC) operating as the nodal agency.
- NCIIPC has been created under Information Technology Act, 2000 to secure India's critical information infrastructure. It is based in New Delhi.
- Promoting cutting edge research and development of cyber security technology.
- Human Resource Development through education and training programs to build capacity.

Cyber Surakshit Bharat Initiative: It was launched in 2018 with an aim to spread awareness about cybercrime and building capacity for safety measures for Chief Information Security Officers (CISOs) and frontline IT staff across all government departments.

National Cyber security Coordination Centre (NCCC): In 2017, the NCCC was developed. Its mandate is to scan internet traffic and communication metadata (which are little snippets of information hidden inside each communication) coming into the country to detect real-time cyber threats.

Cyber Swachhata Kendra: In 2017, this platform was introduced for internet users to clean their computers and devices by wiping out viruses and malware.

Training of 1.14 Lakh persons through 52 institutions under the Information Security Education and Awareness Project (ISEA) – a project to raise awareness and to provide research, education and training in the field of Information Security.

International cooperation: Looking forward to becoming a secure cyber ecosystem, India has joined hands with several developed countries like the United States, Singapore, Japan, etc. These agreements will help India to challenge even more sophisticated cyber threats.

Way forward:

- Real-time intelligence is required for preventing and containing cyber-attacks.
- Periodical 'Backup of Data' is a solution to ransomware.
- Using Artificial Intelligence (AI) for predicting and accurately identifying attacks.
- Using the knowledge gained from actual attacks that have already taken place in building effective and pragmatic defence.
- Increased awareness about cyber threats for which digital literacy is required first.
- India needs to secure its computing environment and IoT with current tools, patches, updates and best known methods in a timely manner.



- The need of the hour for Indian government is to develop core skills in cyber security, data integrity and data security fields while also setting stringent cyber security standards to protect banks and financial institutions.

Conclusion:

India must plan to leverage offensive and defensive cyber capabilities, by getting serious about cybersecurity. There must not be piecemeal approach: The security of a billion hand-held devices is of equal strategic value to the country's nuclear assets.

Extremism originating from the region can be fought successfully if the historical and sociological reasons for it are suitably addressed. Do you agree? Elucidate. (250 words)

The hindu

Why this question:

The article brings out a report that highlights the fact that Pakistan failed to "significantly limit" Punjab militant outfits like the Lashkar And the Jaish-e-Mohammed (JeM) which has posed significant threats to India's security interests.

Key demand of the question:

One has to explain in what way extremism originating from the region can be fought successfully if the historical and sociological reasons for it are suitably addressed.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In brief highlight the situation.

Body:

First explain what the reasons for increased militancy are in this region.

Discuss that Political marginalization, weak governance, economic neglect and glaring income inequity are also some of the main reason violent extremism in this region.

Discuss what needs to be done to overcome it.

Conclusion:

Conclude with solutions.

Introduction:

The U.S. Congress's just-released 'Country Reports on Terrorism' for 2018 has mentioned that Pakistan failed to "significantly limit" Punjab-based militant outfits like the Lashkar-e-Taiba (LeT) and the Jaish-e-Mohammed (JeM). Contemporary discussions on extremism originating from the province are mostly framed around the Pakistani military's support to these extremist groups.

Body:

Historical and Sociological reasons behind the extremism in J&K:

• The dominant province:

- Punjab overshadows other provinces in Pakistan primarily due to its size, resources and representation in elite institutions.



- It can be broken into three broad sub-cultural units: The Punjabi-speaking eastern and central Punjab; the Pothwari-speaking northern Punjab that includes Rawalpindi and Islamabad; and the Saraiki-speaking southern Punjab.
- a less-acknowledged fact in Partition studies is the massive outflow of Muslims from the plains of J&K, mostly the southern part i.e. Jammu, in 1947.
- **Seasonal water scarcity:**
 - Another issue used by militants to gain support is that of seasonal water scarcity.
 - The name 'Punjab' was derived from the Persian words panj (five) and ab (waters). The five rivers referred to here — Chenab, Jhelum, Beas, Sutlej and Ravi — flow through the Punjab's territory.
 - Whenever there is seasonal water scarcity, terrorist outfits such as LeT point fingers at India. The 'jihad in Kashmir' is presented as a necessity by organisations like the Jamaat-ud-Dawa (JuD) to save Punjab's agriculture.
 - In the past, Hafiz Saeed, LeT founder and alleged mastermind of the Mumbai attacks, has repeatedly tried rallying support of locals alleging that 'India is in the process of constructing several dams on Chenab, Jhelum and Indus rivers in a bid to completely stop the flow of water towards Pakistan'.
- **Political marginalisation:**
 - A 2016 International Crisis Group paper, written exclusively on violent extremism in southern Punjab, had stated that among the reasons for support for militancy in the "rural and relatively poorly developed" part of the province were "political marginalisation, weak governance, economic neglect and glaring income inequity".
 - the role played by economically poor Muslim migrants from India in the spread of a radical version of the Deobandi School of Islam.
 - The poverty of the Muslim migrants from India was in marked contrast to the prosperity of large landowners in rural areas, who were mostly Shias and Barelvīs and formed the political elite.

Measures needed:

- Deal with the separatist elements with a heavy hand and place a blanket ban on their conspiratorial confabulations with the Pak authorities, both in Delhi and in Islamabad.
- Any contacts with the terrorist outfits active in/ J&K should be dealt with under the Unlawful Activities (Prevention) Act.
- ensure comprehensive socio- economic development of the State, ensuring accountability in the utilization of funds;
- Initiate appropriate measures to bring back and rehabilitate the Kashmiri Pandits who were dislodged from their homes and forced to seek shelter in other parts of the country.
- Keep the issue of Pakistan Occupied Kashmir (PoK) alive and put pressure on China to withdraw from the areas it has occupied in J&K.



Conclusion:

Apart from dealing with the challenge posed by the deep state's support for these outfits, we also need knowledge of the sociological and historical nuances pertaining to the Punjab province. Such an understanding is necessary to develop a holistic response to counter the extremist threat.

Challenges to internal security through communication networks, role of media and social networking sites in internal security challenges, basics of cyber security; money-laundering and its prevention

Examine the position of data protection law in the country? After the recent WhatsApp breach, what should be the way forward? Comment. (250 words)

The hindu

Why this question:

The article discusses the recent incidents of data breaches and the compromised cyber security.

Key demand of the question:

Discuss the position of data protection law in the country and suggest way forward.

Directive:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

In brief discuss the security aspect of the country.

Body:

Explain in detail the data protection scenario of the country. Explain the legal routes to surveillance that can be conducted by the government.

Discuss the laws governing this.

Explain the laws regarding legal surveillance.

Discuss the Supreme Court verdict on privacy.

Conclusion:

Conclude with way forward.

Introduction:

The recent incident of Israeli software, Pegasus, which had been used to hack the WhatsApp accounts of — and spy on — numerous Indian human rights defenders, activists, and lawyers. It is yet to be determined who authorised this surveillance — and why — but the revelations placed a renewed spotlight upon the legal framework governing privacy and surveillance in India. The Government's reaction to messaging platform WhatsApp's revelation is inadequate and, more unfortunately, far from reassuring.

Body:

Legality of surveillance in India:

- There are legal routes to surveillance that can be conducted by the government.
- The laws governing this are the **Indian Telegraph Act, 1885**, which deals with **interception of calls**, and the **Information Technology (IT) Act, 2000**, which deals with **interception of data**.
- Under both laws, **only the government**, under certain circumstances, is permitted to conduct surveillance, and **not private actors**.



- **Hacking is expressly prohibited under the IT Act.**
- Section 43 and Section 66 of the IT Act cover the civil and criminal offences of data theft and hacking respectively.
- Section 66B covers punishment for dishonestly receiving stolen computer resource or communication.
- The punishment includes imprisonment for a term which may extend to three years.
- However, the Supreme Court laid down some guidelines that were later codified into rules in 2007. This included a specific rule that orders on interceptions of communication should only be issued by the Secretary in the Ministry of Home Affairs.

Position of Data protection laws:

- The Supreme Court in a landmark decision in August, 2017 (**Justice K. S. Puttaswamy (Retd.) and Anr. vs Union of India and Others**) unanimously upheld **right to privacy as a fundamental right under Articles 14, 19 and 21 of the Constitution**.
- It is a building block and an important component of the legal battles that are to come over the state's ability to conduct surveillance.
- But as yet a grey area remains between privacy and the state's requirements for security.
- In the same year, the government also constituted a **Data Protection Committee under retired Justice B.N. Srikrishna**.
- It held public hearings across India and submitted a draft data protection law in 2018 which Parliament is yet to enact.
- Experts have pointed out, however, that the draft law does not deal adequately with surveillance reform.

An U.K.-based security firm Comparitech did a survey of 47 countries to see where governments are failing to protect privacy or are creating surveillance states. They found that only five countries had "adequate safeguards" and most are actively conducting surveillance on citizens and sharing information about them. China and Russia featured as the top two worst offenders on the list. India was third on the list as data protection Bill is yet to take effect and there isn't a data protection authority in place

Other stringent measures needed to protect the Right to Privacy of individuals:

- Conscientious whistle-blowers, and a free and active press will be required.
- when cases of extra-legal and unauthorised surveillance come to light, the courts have a role to play in ensuring that the rule of law is upheld and vindicated.
- the State must not be permitted to take advantage of breaking the law and illegally snooping on citizens.
- In a country where data protection and privacy laws are still in a nascent stage, incidents such as this highlight the big dangers to privacy and freedom in an increasingly digital society.



- There is a need to bring in the **data protection bill** and the antiquated **1885 Telegraph Act, and its attendant rules** should be reformed.
- It is thus imperative that the Government sends a strong message on privacy, something that the Supreme Court in 2017 declared to be intrinsic to life and liberty and therefore an inherent part of the fundamental rights.

Conclusion:

The urgent need of the hour to bring in laws that limit the State's powers of surveillance only to those situations where it is strictly necessary and never conducted in bulk, upon the entire population. The more important, introduce stringent penalties for illegal surveillance, if — and when — that comes to light. The WhatsApp-Pegasus controversy affords a golden opportunity to do just that.

To what extent do you think Social media has reshaped caste mobilisation tendencies among people? And if so, in what possible ways? Critically analyse. (250 words)

Hindustantimes

Why this question:

The advent of social media has heralded a new era in public discourse. Popular social media platforms such as Facebook and Twitter have allowed the forging of new networks among like-minded people, and changed the contours of public debate and socio-political mobilisation.

Key demand of the question:

One must discuss how social media has reshaped caste imagination and mobilisation in the country.

Directive:

Critically analyse – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgment.

Structure of the answer:

Introduction:

In brief discuss social media, its key aspects.

Body:

First trace the mobilisation of caste historically in the absence of social media.

Then discuss the impact social media has shed upon the caste mobilisation factor.

Discuss both pros and cons.

Explain with examples how it is evident that the trends of mobilisation are changing with the influence of social media.

Conclusion:

Conclude with need to regulate social media with respect to caste mobilisation factor in a positive direction.

Introduction:

Popular social media platforms such as Facebook and Twitter have allowed the forging of new networks among like-minded people, and changed the contours of public debate and socio-political mobilisation. Since caste is omnipresent in India, it is not surprising that it has touched social media. According to a recent Lokniti-CSDS study, the spread of social media has largely been among the upper-castes in urban centres, followed by the Muslims. But there is an increasing presence of those belonging to the SC/ST and OBC communities in recent years.

**Body:**

All around the world, social media has given a voice to anyone who wants to speak. In India, it has empowered the country's most oppressed group, dalits (formerly known as untouchables), to speak their minds, without fear of punishment, for the first time in history.

Social media is reshaping Caste mobilization:

- Historically, the representation of the subaltern castes in the media has been negligible.
- Unable to find their voices and issues heard in the mainstream media space, they created an alternative space for information dissemination.
- While social media is often accused of being casteist and discriminatory, it is the only media space that has provided the subaltern castes with the freest and least-discriminatory platform to create their discourse and ideate.
- It has led to the organic growth of subaltern media, and explosion of a Dalit-Bahujan discourse, including that of the Pasmandas (the subaltern lower caste Muslims).
- Social media is replacing pamphlets in the political rallies of parties such as the Bahujan Samaj Party (BSP) as the preferred medium of dissemination of counterculture.
- The social media channels of Dalit-Bahujan groups have thousands of subscribers now, and their posts and videos are shared widely, even though they may be invisible in mainstream discourse.
- Social media has also reshaped caste imagination because now people can overcome the ghetto mentality, which was ingrained by caste-based socialisation.
- For a large number of youth in the villages and small towns, social media has provided an opportunity to interact with people who don't think like them and don't fit into their social worldview.
- This has sharpened the contrast between the subjective notions of the social status of their caste, with the objective reality, resulting in bitterness and aggression.
- This has enabled caste-based mobilisation on a far larger scale.

Recent instances of how social media is reshaping caste mobilization:

- Recently, protests broke out against Twitter over the allegations of a systematic denial of the blue tick verification to handles belonging to the Dalit and backward communities.
- Even the official handles of Prakash Ambedkar or the Bhim Army chief were not verified, while the handles of even the lesser-known members of liberal chatterati, with a few thousand followers, would have the blue tick.
- Hard-hitting Twitter hashtags trended for several days accusing the company of being a casteist enterprise, and asking it to either verify the handles of public figures of the Scheduled Caste/Scheduled Tribe (SC/ST) and Other Backward Classes (OBC) communities, or cancel blue ticks of all accounts.



- Caste mobilization using social media was visible during the April 2018 protests against an order of the Supreme Court on the Scheduled Caste and Scheduled Tribe (Prevention of Atrocities) Act, 1989.
- YouTube is also flooded with the new age songs of caste-assertion and caste-glorification, often descending into humiliating “others”.

Challenges faced:

- Despite having a rapidly-growing user base on social media platforms, these communities hardly find any representation in the organisations and policymaking of these companies.
- This has led to allegations of a systematic caste bias in the policies and the social media platforms’ ways of working.
- The top echelons of the social media companies are headed by the upper caste hindu people or foreigners.

Way forward:

- Social media companies need to have a transparent user policy and take action against caste-based abuse and demonetisation.
- Currently, the standard reply of Twitter to such abuse is that it doesn’t find a violation of rules in the reported content.
- There must also be more transparency in the parameters used in their algorithms and mechanisms adopted for decision-making.
- Suspension of accounts will go a long way in ensuring the credibility of these platforms amid allegations of ideological, political or social biases.

Effective counter-terrorism requires a more comprehensive strategy. It requires a constant process of evaluation and adjustment. Comment in the light of India’s “zero tolerance” policy on terrorism.(250 words)

The hindu

Why this question:

The article discusses the role of Counter Terrorism programme, NATGRID which is a post Mumbai 26/11 attack measure. It highlights the Israeli model of comprehensive strategy.

Key demand of the question:

Explain India’s strategy for counter terrorism in detail.

Directive:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

The current government has declared a “zero tolerance” policy on terrorism.

Body:

Present a brief background – India’s military responses in 2016 (surgical strikes) and 2019 (Balakot airstrikes) in the backdrop of terrorist attacks in Uri and Pulwama, were framed as attempts to impose costs on the Pakistani terrorist groups and their Army backers.

These responses mark a drastic change in India’s approach to counter-terrorism.



The present government has repeatedly declared that it will emulate Israel's apparently successful strategy in responding to cross-border terrorism.

Discuss the concerns associated.

Conclusion:

Conclude that Effective counter-terrorism requires a more comprehensive strategy. It requires a constant process of evaluation and adjustment – Israel does not have all the answers and relies on trial and error for different contexts.

Introduction:

Terrorism has become a global phenomenon posing major threat to international peace, security and stability. Access to advance technology, including cyberspace, sophisticated communications, global funding and military grade weapons has given such groups enormous strength. Terrorism constitutes one of the principal challenges at the global, regional and national levels and has become a key factor in national security planning.

The current government has declared a “zero tolerance” policy on terrorism. India's military responses in 2016 (surgical strikes) and 2019 (Balakot airstrikes) in the backdrop of terrorist attacks in Uri and Pulwama, were framed as attempts to impose costs on the Pakistani terrorist groups and their Army backers.

Body:

Key challenges in India's counterterrorism efforts:

- The present government's emulation of Israel's strategy in responding to cross-border terrorism seems to mischaracterize Israeli strategy.
- There is a place for punishment in counter-terrorism but India risks overemphasizing the narrow role of military punishment, and it fails to consider other elements of strategy, which Israel itself has embraced, that are critical to counter-terrorism effectiveness.
- The use of military action at best allows the punisher to manage the ongoing conflict, and communicate diminishing patience with the adversary.
- Providing sponsorship and safe havens have further played a major role in the phenomenal growth of global terrorism.
- In addition, State support has granted terrorist groups access to resources, guidance and logistics, which would normally be beyond their capabilities. Any effort to counter the activities of terrorist groups carries the danger of placing the victim nation in direct confrontation with the host nation and its resources.
- Terrorism is handled by different state police systems with no legal role by the central government under Schedule 7 of our Constitution. Similarly, the intelligence provided by the central government to the states is only of advisory nature.
- In many countries concurrent powers are given to the central government to intervene when a state fails to take security measures. Unfortunately, India does not have that system.
- Intelligence agencies which were once able to operate beyond their borders are finding it difficult to detect transnational tentacles, even within their country, of al Qaeda or IS.
- Lack of citizen participation and private sector participation in beefing up the security apparatus



- Absence of “bottom up” security architecture
- Lack of coordination between agencies
- India’s counter-terror efforts continue to be thwarted due to lack of international collaboration in respect of exchange of information and evidence or of extradition of the accused persons who are hiding outside India’s territory.
- The online propaganda of the terrorist groups is radicalising the youth for instance ISIS influencing the youth

Measures taken:

- India has taken steps for setting up of Joint Working Groups (JWGs) on counter-terrorism/security matters with key countries.
- Bilateral treaties on Mutual Legal Assistance (MLATs) in Criminal matters to facilitate investigation, collection of evidence, transfer of witnesses, location & action against proceeds of crime etc. have been signed with other countries.
- India boosted the security-related infrastructure at the border management by launching new schemes, and have been able to successfully minimize cross-border-infiltration.
- Similarly, Indian government has allocated substantial funds to the police modernisation programmes all over the country with a view to ensure quick and better response mechanisms.
- India has raised Regional Hubs of NSG battalions in important strategic locations, to meet any unforeseen challenges.
- India created a new Division in the Home Ministry exclusively to deal with Counter Terrorism.
- Stringent acts such as UAPA
- Coastal security was given high priority, and it is with the Navy/Coast Guard/marine police.
- A specialised agency to deal with terrorist offences, the National Investigation Agency, was set up and has been functioning from January 2009.
- The National Intelligence Grid (NATGRID) has been constituted to create an appropriate database of security related information.
- The Multi Agency Centre, which functions under the Intelligence Bureau, was further strengthened and its activities expanded.
- The Navy constituted a Joint Operations Centre to keep vigil over India’s extended coastline.
- **Financial Intelligence Unit-IND (FIU-IND)** is the central national agency responsible for receiving, processing, analysing and disseminating information relating to suspect financial transactions.
- A special **Combating Financing of Terrorism (CFT) Cell** has been created in the Ministry of Home Affairs in 2011, to coordinate with the Central Intelligence/Enforcement Agencies and the State Law Enforcement Agencies for an integrated approach to tackle the problem of terror funding.

**Way forward:**

- Capacities of the state police forces should be increased
- Dealing with the menace of terrorism would require a comprehensive strategy with involvement of different stakeholders, the Government, political parties, security agencies, civil society and media.
- There is a need for National Counter Terrorism Centre. A centrally co-ordinated Terrorism Watch Centre, which could also operate as a think tank with sufficient inputs from academic and private experts.
- A strategy for fighting terror in India has to be evolved in the overall context of a national security strategy. To tackle the menace of terrorism, a multi-pronged approach is needed.
- Socio-economic development is a priority so that vulnerable sections of society do not fall prey to the propaganda of terrorists promising them wealth and equity.
- A more comprehensive approach, as embodied in the proposed Convention on Countering International Terrorism (CCIT) is required in tackling the contemporary form of terrorism.

Conclusion:

Counter-terrorism is a national security issue and political parties must resist the attempts at politicizing them. Such policies only serve to sharpen public fears. Effective counter-terrorism requires a more comprehensive strategy. It requires a constant process of evaluation and adjustment – Israel does not have all the answers and relies on trial and error for different contexts.

Various Security forces and agencies and their mandate.

Discuss the framework of the security forces in India. List the security agencies in India and their respective mandates.(250 words)

[The hindu Reference](#)

Why this question:

The article highlights the attempt that is underway to shift the operational control of Assam Rifles from the Army to the Home Ministry.

Key demand of the question:

The question is straightforward and one must discuss in detail the framework of the security forces in India.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:**Introduction:**

In brief narrate the internal security scenario of the country.

Body:

Provide for a detailed overview of the system works, straightaway list the security agencies in India and their respective mandates.



Explain that there are external and internal threats to security of India and different specialized forces of India deal with these threats. The external threats are handled often by the Armed Forces under the Ministry of Defence, while internal threats are managed by the Ministry of Home Affairs.

Conclusion:

Conclude with their significance.

Introduction:

Reports suggest that an attempt is under way to shift the operational control of Assam Rifles from the Army to the Home Ministry. Having failed to convince the discerning political leaders, the current effort is to hijack Assam Rifles by transferring its full control to the Home Ministry, and replace Army officers with police officers.

Body:

In 2009, the draft Cabinet note for the Cabinet Committee on Security (CCS) was moved to amalgamate the Assam Rifles, a paramilitary force, with the Indo-Tibetan Border Police (ITBP), a Central Armed Police Force, and provide leadership from the police, replacing military leadership. This proposal was turned down by the CCS, understandably recognising the importance of the history and traditions of Assam Rifles, and the crucial role it continues to play in the security of the Northeast region.

Home grown challenges and threats from across international borders have taken different shapes, be it ethnic insurgency, militancy or terrorism that have weakened and damaged the nation.

Central Armed Police Forces: There are many divisions of Central Armed Police Force, which deal with internal threats.

- **Assam Rifles (AR):** The Assam Rifles contribution towards assimilation of the people of the North-East into the national mainstream is truly monumental. They perform many roles including the provision of internal security under the control of the army through the conduct of counter insurgency and border security operations, provision of aid to the civil power in times of emergency, and the provision of communications, medical assistance and education in remote areas.
- **Border Security Force (BSF):** Its operational responsibility is spread over 6385.36 kms. of international border along Indo-Pakistan, Indo-Bangladesh borders. BSF is also deployed on LoC in J&K under operational control of the Army.
- **Central Industrial Security Force (CISF):** Raised in the year 1969, CISF is presently providing security cover to important installations like space and atomic energy establishments, sea ports, airports, coal mines, steel plants, thermal and hydel power plants, oil and petrochemicals installations, heavy industries, defence establishments, security presses, museums and historical monuments. The charter of CISF has been expanded to provide security cover to VIPs as well as to provide technical consultancy services relating to security and fire protection to industries in public and private sectors.
- **Central Reserve Police Force (CRPF):** The Force is presently handling a wide range of duties covering law and order, counter insurgency, anti-militancy and anti-terrorism operations. The Force plays a key role in assisting States in maintaining public order and countering subversive activities of militant groups.
- **Indo Tibetan Border Police (ITBP):** ITBP plays an important role in organizing the annual Kailash Mansarovar Yatra besides providing assistance in disaster management in the central



and western Himalayan regions. New challenging role that has emerged for ITBP is disaster management as it is the first responder for natural Disaster in Himalayas. ITBP is in the forefront of movement for the preservation of Himalayan environment & ecology.

- **National Security Guard (NSG):** National Security Guard was raised in 1984, following Operation Blue Star and the assassination of Indira Gandhi, “for combating terrorist activities with a view to protect States against internal disturbances”. The primary role of this Force is to combat terrorism in whatever form it may assume in areas where activity of terrorists assumes serious proportions, and the State Police and other Central Police Forces cannot cope up with the situation.
- **Sashastra Seema Bal (SSB):** As a border guarding force and lead intelligence agency (LIA) for Indo-Nepal border and Indo-Bhutan border. To promote sense of security among the people living in the border area. To prevent trans-border crimes and unauthorized entries into or exit from the territory of India. To prevent smuggling and other illegal activities.

Challenges in moving AR from Defence to Home ministry guard:

- The Northeast is the most volatile and insurgency-affected region of India after Kashmir.
- Besides operating from within the region, militants surreptitiously operate from neighbouring countries by exploiting the free movement regime along the India-Myanmar border and inaccessible terrain.
- These borders, though settled, require specialised skills, not just mere policing functions.
- Recently China has brought its frontier troops, including those guarding its border with India, directly under the military command, removing civilian control over them.
- The India-Myanmar border, though manned by Myanmar’s Border Guard Police, is also controlled by Myanmar’s Army for conducting seamless operations against insurgent groups operating against the state.

Way forward:

- A more viable alternative for the Home Ministry would be to look inwards and merge ITBP with the Sashastra Seema Bal to space out the almost continuous high altitude tenures of ITBP personnel.
- Since both are being led by police officers, internal management would be easier.
- It is more prudent to have a specialised counterinsurgency force, which doubles as a reserve for conventional war.
- This is due to its continued functioning, manning and training under the Army with a similar ethos and structure.

Conclusion:

Downgrading Assam Rifles from its present status of paramilitary force by merging a part or whole of it with a Central Armed Police Force will not only impinge on national security but also affect the strength and morale of the force. Shifting Assam Rifles under a cadre which is looking to just create career opportunities places personal interests over national security



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DECEMBER 2019



Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

Economists and experts argue that India is now in classic Stagflation Territory. Analyse. What are the structural policies needed to curb the economic slowdown facing India?

[The Hindu](#)

[The Wire](#)

[The Economic Times](#)

Why this question:

The slowdown is three years in the making and it is now irrefutable that India is in a growth recession.

Key demand of the question:

One has to find the reasons for the economic slowdown facing India and provide the structural measures needed to overcome the same.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Define what is stagflation.

Stagflation, as defined by Princeton economist Alan S. Blinder, is “the simultaneous occurrence of economic stagnation and comparatively high rates of inflation”.

Body:

Discuss the reasons for the economic slowdown.

Provide data to substantiate your views.

According to the National Statistical Office (NSO), the Consumer Food Price Index increased from 5.11% in September 2019 to 7.89% in October 2019. The retail price inflation rate reached an annual high at 4.62%. The government itself has admitted that growth has slowed. The recent NSO estimates of gross domestic product (GDP) for the second quarter of 2019-20 reported a further reduction in the growth rate of GDP to 4.5%, the lowest since 2012-13.

Provide the various structural measures needed to overcome

like Higher liquidity and disposable income, and increased employment; reduction and reform of direct individual and corporate taxes, and indirect taxes. Labour laws also need to be amended to generate employment.

Conclusion:

Conclude with a way forward.

Introduction:

Stagflation, as defined by Princeton economist Alan S. Blinder, is “the simultaneous occurrence of economic stagnation and comparatively high rates of inflation”.

Body:

Economic scenario which point towards stagflation in India:

- According to the National Statistical Office (NSO), the Consumer Food Price Index increased from 5.11% in September 2019 to 7.89% in October 2019.
- The retail price inflation rate reached an annual high at 4.62%. The government itself has admitted that growth has slowed.



- The recent NSO estimates of gross domestic product (GDP) for the second quarter of 2019-20 reported a further reduction in the growth rate of GDP to 4.5%, the lowest since 2012-13.
- India's gross domestic product (GDP) growth has dropped to 4.5% in the July-September quarter of 2019-20, a free fall from the government's ambitious call for a double-digit growth not so long ago.
- The fall has been sudden although not entirely unexpected. In the first quarter of 2016-17, India registered a spectacular GDP growth of 9.4%. Today, it's struggling at a 26-quarter low.

Measures taken by the Government now:

- First it withdrew the super-rich surcharge levied on foreign portfolio investors and then rolled out a series of measures, including corporate tax cut and the proposal to set up a Rs 25,000 crore fund to revive the realty sector.
- The RBI, for its part, has already lowered its benchmark interest rate (repo rate) five times during this calendar year, taking the cumulative cuts to 135 basis points, from 6.5% in January to 5.15% in October, even as the Consumer Price Index (CPI)-based inflation shot.
- To avoid further economic turbulence, the Centre has pressed the pause button on banning single-use plastics as well as the quick replacement of fossil fuel-guzzling automobiles with electric vehicles.

Structural measures needed:

- The Reserve Bank of India (RBI) can quickly increase the amount of cash in the economy.
- Then banks, especially public sector banks, can use that together with interest rate policy to provide easy credit. A larger supply of credit should lead to cheaper credit.
- This will have to be supported by reduction of the administered price of credit, which is the RBI's repo rate.
- There could be hurdles to credit off-take due to fiduciary or prudential reasons, so those need to be tackled. Same for mismatched expectations.
- Higher liquidity and disposable income, and increased employment can pull us out of the quagmire.
- reduction and reform of direct individual and corporate taxes, and indirect taxes.
- Labour laws also need to be amended to generate employment.
- The government needs to hold granular conversations with the private sector.
- A skills and industrial policy which can make full use of an abundant pool of reasonably priced labour

Conclusion:

The current economic slowdown is an outcome of supply-side constraints and not demand-side constraints. We need to produce things that Indians earning minimum wages can afford, so that the aggregate demand will increase.



With successive cuts in the policy rates, the RBI has been sending a signal to the rest of the banking system that the lending rates should come down. However, the monetary policy transmission has been inefficient in India. Discuss. Suggest measures to tackle the issue.

The Hindu

The Hindu

Why this question:

The Monetary Policy Committee of the Reserve Bank of India (RBI) decided to keep the interest rate unchanged at 5.15% in the fifth bimonthly policy review, citing inflation concerns despite economic growth continuing to slow down. All the six members of the MPC voted in favour of keeping the interest rate unchanged.

Key demand of the question:

One must assess the reasons for poor transmission of the monetary policies, the implications of not doing so by the banks and the other measures needed

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly narrate the background of the issue. Between February and August, the RBI cut repo rate from 6.5% to 5.4%. But, the interest rate charged by banks on fresh loans fell just 27% of the amount by which the repo rate came down.

Body:

The answer should cover the following:

Discuss first the role of RBI's Monetary Policy.

Monetary Policy Process and Goals of Monetary policy.

Current issues facing RBI policies.

What needs to be done to address these issues and challenges?

Discuss the role of government policies is also of prime importance in handling such issues.

Conclusion:

Conclude with a way forward.

Introduction:

The monetary policy refers to a regulatory policy whereby the central bank maintains its control over the supply of money to achieve the general economic goals. Since February 2019, the Reserve Bank of India (RBI) has aggressively cut the repo rate. By cutting the repo rate, the RBI has been sending a signal to the rest of the banking system that the lending rates should come down.

The Monetary Policy Committee of the Reserve Bank of India (RBI) decided to keep the interest rate unchanged at 5.15% in the fifth bimonthly policy review (Dec 2019), citing inflation concerns despite economic growth continuing to slow down.

Body:

Monetary policy scenario in India:

- In India, the process of monetary policy transmission is inefficient.
- For example, between February and December, the RBI cut repo rate from 6.5% to 5.15%.
- But, the interest rate charged by banks on fresh loans fell just 27% of the amount by which the repo rate came down.



- Further, RBI has urged banks to link their lending rates to the repo rate

Reasons for policy rate cut:

- Since February, India's economic growth momentum has rapidly decelerated.
- Projections of GDP growth rate have come down.
- A lower interest rate regime is expected to help.
- The main issue is that people are not consuming at a high enough rate.
- At lower interest rates, people are expected to borrow and spend more, the more the money circulates in the economy, the greater would be the economic activity.
- If banks reduce their lending rates, they would also have to reduce their deposit rates.
- This, in turn, will incentivise people to save less and spend more.
- If banks reduce the interest rates on loans, more businesses are likely to be enthused to borrow new loans for investment

Reasons for poor monetary policy transmission:

- Repo rates have little impact on a bank's overall cost of funds.
- Reducing lending rates just because the repo rate has been cut is not feasible for banks.
- This is because, for banks to be viable, there must be a clear difference between the lending rate (charged on loans) and the deposit rate (given on deposits).
- The difference between the two has to be not only positive but also big enough for the bank to make profits.
- Notably, to attract deposits, banks pay a high deposit rate.
- Such deposits make up almost 80% of all banks' funds from which they then lend to borrowers.
- On the other hand, banks borrow a minuscule fraction from the RBI under the repo.
- So even sharply reducing the repo rate does not change the overall cost of funds for the banks.
- In effect, unless banks reduce their deposit rates, they will not be able to reduce their lending rates.
- However, if a bank were to reduce its deposit rates, depositors would shift to a rival bank that pays better interest rates.
- Otherwise, they would park more of their savings in small saving instruments (public provident fund, Sukanya Samriddhi Yojana, etc) that pay much higher interest rates.
- Also, 65% of total deposits are "term" deposits (fixed for a certain duration) and take, on an average, up to 2 years to get repriced at fresh rates.
- So, banks cannot always reduce deposit rates immediately as deposits take longer to get repriced.



- Moreover, if banks are under pressure to reduce the interest rate they charge on new loans, they could possibly push up the interest rates on old loans that allow for such flexibility.

Measures needed:

- Enabling effective monetary transmission would not only increase the credibility of the Central Bank but also help in strengthening the financial structure.
- Impounding of bank money by RBI is too high with 4% cash reserve ratio carrying no return whatsoever.
- To make transmission work, the least the RBI can do is to reduce CRR.
- Timely transmission of policy rates could be considerably improved if the banking sector's non-performing assets (NPAs) are resolved more quickly and efficiently.
- If the government wants to reduce lending rates, it could focus on bringing down its own fiscal deficit and public sector borrowing.
- At the current low levels of per capita income, the savers are far more risk-averse in India and unwilling to invest in higher-risk instruments other than bank deposits.
- For a repo-linked regime to work, the whole banking system in India would have to shift to that.
- In other words, along with banks' lending rates, their deposit rates too must go up and down with the repo.

Imports from China have curbed capacity creation and utilization over time. Do you think India's bane is its non-competitiveness? Analyse with relevant illustrations. (250 words).

Business Line

Why this question:

The question seeks to examine the levels of competitiveness India stands at owing to competition from China.

Key demand of the question:

One must examine closely the effects of Chinese market flooding Indian markets and in what way it has curbed capacity creation and utilization over time.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Explain the context of the question in brief.

Body:

Discuss the following aspects in the answer body:

Explain the relevance of competitiveness in general to an economy of a country.

Highlight the current trends in the world; discuss how the strategies of one country affect the other.

Discuss the case of India and China.

Take hints from the article and illustrate relevantly the context of the answer.

Conclusion:

Conclude with solutions as to what should India do to overcome these challenges.

Introduction:



Bilateral trade between India and China increased from USD 38 billion in 2007-08 to USD 89.6 billion in 2017-18. While imports from China increased by USD 50 billion, exports increased by USD 2.5 billion during the same period. This has widened India's trade deficit. Trade with China constitutes more than 40% of India's total trade deficit. Government of India has been taking continuous and sustained steps to bridge trade deficit by lowering the trade barriers for Indian exports to China.

Body:

Relevance of competitiveness to an economy of a country:

- Foreign Trade is the important factor in economic development in any nation.
- International trade is a crucial part of development strategy and it can be an effective mechanism of financial growth, job opportunities and poverty reduction in an economy.
- According to Traditional Pattern of development, resources are transferred from the agricultural to the manufacturing sector and then into services.

Case study of India's non-competitiveness:

Why is India lagging behind in ready-made garment exports? This is one sector where India has had a traditional advantage, and should have raced ahead, due to the low-cost space vacated by China. India is capable of investing in modern machinery and automation, as also in skilling its personnel, just like its competitors. But Bangladesh and Vietnam have now outpaced India even in absolute, not just relative, terms. Of course, a country like Bangladesh has greater labour flexibility, and allows three shifts even with women, who now dominate the garment sector in that country. It may be argued that Bangladesh has special duty-free access to the US and EU, accorded to low-income countries. Even then, however, it does not explain India's lacklustre performance.

India's bane is its non-competitiveness:

- India's competitiveness in the labour intensive export sectors has been on a declining path in the last decade and needs significant structural reforms that need to be addressed
- The **rigidity in labour laws, challenges associated with land acquisition, inadequate physical infrastructure (roads, ports and electricity), and poorly skilled manpower** have held back manufacturing sector growth
- The **limited diversification of India's export basket**, with the top 10 principal exports in terms of commodity groups accounting for as much as 78 per cent of total merchandise exports.
- In recent times the export performance of some of these goods has either deteriorated or been characterised by a lack of dynamism.
- Thus, for example, four of India's lead exports (Engineering goods, Gems and jewellery, chemicals and readymade garments) registered negative or near zero growth rates during 2015-16.
- The **absence of product patents** till the revision of the patent law in 2005 had helped India build the capability to manufacture of generic drugs that are substitutes for more expensive branded products.



- the industry had found a foothold in the patent-expired, generic drug market that accounts for around a third of the \$1 trillion plus global market for pharmaceutical products. This was reflected in high export growth figures, but those growth rates have collapsed more recently.
- in recent years, special circumstances have not only affected exports of some commodities, but because of the **low value on average of India's export trade**, allowed these 'special category' goods to find a slot among India's principal exports for a brief period. Typical examples are iron ore, rice and petroleum products

Way forward:

- India needs to take a hard look at its choices. India must move fast to renew its stalled trade negotiations with the European Union, RCEP etc.
- There is a need to focus on labour-intensive exports such as agriculture, textiles, footwear and tourism
- The **revealed comparative advantage (RCA)**, a measure of international competitiveness, for some of India's key export items has declined in the past decade should be increased as Most of these sectors have large employment multipliers.
- Creating global competitiveness and doing all that it takes to do so, including abandoning conventional ways of thinking, cannot be delayed.
- Better-functioning factor markets and reducing costs for businesses are overdue.
- Smarter, creative policies for developing and nurturing the nation's industrial and technological capacities need to be crafted.
- We must shun product- and market-specific incentives (which run afoul of World Trade Organization rules), but focus on regional or cluster subsidies, which benefit all producers, small or large, domestic or export oriented.
- steps including improving purchasing power across the board, bringing out favourable tax policies for the middle class, increasing investment and attracting FDI as well as maintaining global competitiveness.
- Economic nationalism and greater ambition is the need of the hour.
- Lastly, we should be committed to open borders, notwithstanding the pressure to raise trade barriers. It is not by protection that domestic industry will become world leaders in competitiveness. And that's an absolute prerequisite to winning in world markets.

Tourism has the potential to be one of the main pillars of India's economy. Examine. (250 words)

The Hindu

Why this question:

As the fourth largest city in the Tamilnadu, Tiruchi — projecting a fine blend of tradition and modernity — serves as a good base for visitors' keen on exploring tourist destinations in central Tamil Nadu. Yet a lot of potential has been left untapped, rue a section of stakeholders in tourism and travel industry.

Key demand of the question:

The question expects us to highlight the potential of tourism sector in India, the shortcomings in



the sector, the steps that India needs to take to boost tourism in the country. Finally, we need to mention the impact of focussing on tourism sector in India.

Directive word

Examine – When asked to ‘Examine’, we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer

Introduction:

Mention that there was a marginal growth of 5.6% in Foreign Tourist Arrivals (FTAs) during the period January-November 2018, as compared to the same period of the previous year. India's Tourism is ranked at 7th position in terms of its contribution to World GDP in World Travel and Tourism Council's report in 2017.

Body:

Discuss the status of tourism in India. Give facts and figures related to revenue and forex earnings, tourist footfalls. Also highlight the diverse nature of tourist circuits in the country. Highlight the areas where work is needed – security, infrastructure, connectivity and so on. give details of these three aspects

Mention the steps taken by the government in improving the aforementioned areas through schemes and programmes like PRASAD, e tourist visa etc.

Discuss the steps that need to be taken still to fill in the gaps

Conclusion:

Give your view on the potential of tourism sector in India and the impact it can have.

Introduction:

India is a large market for travel and tourism. It offers a diverse portfolio of niche tourism products – cruises, adventure, medical, wellness, sports, MICE, eco-tourism, film, rural and religious tourism. India has been recognized as a destination for spiritual tourism for domestic and international tourists.

Travel and tourism industry contributed a tenth of India's GDP in 2018 and accounts for 42 million jobs in the country, report says. In India, over Rs 16 trillion were created by this sector alone. The same is expected to double by 2029, reaching Rs 35 trillion mark. Also, the industry has given a major boost to the global economy as well with it contributing over 10% to the global GDP.

Body:

India's Tourism Industry:

- Currently India is the seventh largest tourism industry.
- 29 states, 4000 cities, rich history, incredible diversity
- India all set to become third largest in next 10 years.
- Tourism contribution to economy to double
- Expected to add 5.23 crore jobs in 2028
- India doing well in medical tourism, business tourism, ecological tourism, pilgrimage tourism, historical tourism, adventure tourism.

Tourism has the potential to be one of the main pillars of India's economy:

**Reasons why rural tourism need to be promoted:**

- Seeing the stressful urban lifestyles leading towards “counter-urbanization” syndrome
- Growing curiosity of urban people regarding rural culture and heritages
- Downfall of income level from agriculture and related works
- Lack of alternative way outs for earning sufficient money
- Scope for new business opportunities
- Changing attitude in Indian and global tourists behaviour in terms of nature awareness and increasing demand for niche tourism and green products. So it is evident that the future of Rural Tourism in India is going to be very promising one.

Maintaining the sustainable livelihood:

- It has a great impact in case of maintaining the sustainable livelihood of the rural population, promoting local culture and heritages, empowering local women, alleviating poverty, conserving and preserving natural resources, improving basic rural infrastructure, adopting new work culture and overall developing a better impression of locality and its people in tourists’ mind.

Reduces migration:

- Tourism facilitates the declining areas to be developed with basic infrastructure facilities and provides the host community alternative ways of employment and side by side it reduces out-migration.
- It fosters a closer relationship between city dwellers and rural communities.

Alternative Way of Earning:

- Tourism can be a potential tool to reduce over-dependency on cultivation especially in rural areas and it contributes to the overall economic development of an area that would otherwise be deprived.

Employment:

- Tourism creates a large number of semi-skilled jobs for the local population in not only local hotels and catering trades but also in other fields like transport, retailing, heritage interpretation etc.
- Moreover, it ensures revival of traditional arts, crafts, building art etc. and brings marketing opportunity for rural producers to sell their products directly to the tourists.
- It allows alternative sources of earning opportunities from non-agricultural sectors that improve living standards of the rural dwellers to some extent.

Job Retention:

- Cash flows generating from rural tourism can assist job retention in services such as retailing, transport, hospitality, medical care etc. It provides additional income for farmers, local fishermen and local suppliers
- Alternative Business Opportunities



- Tourism generates new business opportunities through developing close relationships with tourist facilities.
- For example, a number of tourists love to taste local cuisines of different tourist spots. Therefore, any restaurant serving ethnic foods can also attract tourists though many of these restaurants are not directly related to tourism business.

Poverty Alleviation:

- Rural Tourism is being admired all over the world because such form of tourism can shape up rural society both by economic and social terms.
- It brings both monetary and social benefits to the rural people.
- It alleviates poverty by creating alternative sources of earning.

Empowerment of Localities

- Tourism cannot be flourished without the involvement of local people in it.
- Accommodation facilities are being provided by local hotel owners whereas local suppliers supply food and beverages to the local hotels.
- Local producers produce locally made products as per tourists' demand and earn money by selling them in the local market.
- To entertain tourists, local organizers conduct different cultural programmes where local performers exhibit their art and culture through live performance.
- Not only that, people also become engaged in different decision-making processes. All such engagement actually empowers the localities.

Entrepreneurial scope:

- Tourism has increased career options for the young entrepreneurs.

Arts and Crafts Sale:

- Arts and crafts are the evidence of local culture and heritages of a community belonging from any region or any nation. The urban tourists, wherever they go, generally prefer to have a collection of local arts and crafts to make their trip-experience a remembering one.
- Such tendency motivates them to purchase local arts and crafts from the local producers and artists.
- Side by side it encourages the local community to sell their products in local market. Such practice opens an alternative way of earning to the rural people.

Environmental Improvement:

- Environmental improvements such as village paving and traffic regulation schemes, sewage and litter disposal can be assisted by tourism revenues and political pressures from tourism authorities.
- These help develop pride of place, important in retaining existing population and businesses, and in attracting new enterprises and families.

**Heritage Preservation:**

- Tourism brings a strong sense of emotion in everyone's (both community and tourists) mind to preserve and reserve the local culture and heritages to make any place attractive for the tourists to visit it and also for the host community to live in.
- Such sense is maintained through rural museums that play a significant role in local heritage preservation.

Source of Foreign Exchange Earnings:

- Tourism is an important source of foreign exchange earnings in India. This has favourable impact on the balance of payment of the country.
- The tourism industry in India generated about US\$100 billion in 2008 and that is expected to increase to US\$275.5 billion by 2018 at a 9.4% annual growth rate.

Challenges tourism industry faces:

- **Communication Skill:** The difference in languages and lack of basic education are the two basic obstacles.
- **Legislation Problem:** Generally, owners of licensed accommodation units pay taxes to the government. But it is kind of burden for the poor rural marketers to pay tax at a regular basis as they lack sufficient financial backing and many a time they face losses in business because of seasonal demand.
- **Insufficient Financial Support:** Most of the tourism marketers especially in rural areas come from the poor family background and not every time they are financially supported by the local banks or local government bodies through loan facilities.
- **Lack of Trained Human Resource:** Lack of trained human resource is a common issue that affects directly the tourism and hospitality industry badly. Moreover, the trained people from urban areas normally are not interested in going to rural areas to work due to lack of basic infrastructure facilities.
- **Lack of Proper Physical Communications:** Proper drinking water, sufficient electricity, good telecommunication, safety and security, etc. are the few basic needs of a tourist while he or she is visiting any place individually or in a group. It is unfortunate but true that nearly half of the villages in this country do not have all- weather roads and above said basic facilities.
- **Deprivation, Improper Communication Facilities and Embryonic Stage of Rural Market:**
 - Markets are often characterized by population and majority of them still come under below Poverty Line. These villagers are less involved in showcasing their culture and heritages in front of the tourists visiting their places as they are not very much aware of the potentiality of rural tourism that can act as an alternative source of earning
 - Moreover, most of the rural markets are underdeveloped with lots of hindrances like absence of proper mode of surface transportation, lack of basic infrastructure etc.

Steps to promote Tourism:

- Atithi Devo Bhavah Campaign



- Incredible India Campaign
- Swadesh Darshan Scheme
- PRASAD
- Reforms in Visa process
- Online option of applying for tourist visa
- E-visa facility available to citizens of 163 countries
- India ranks 8th among 100 countries on most valuable nation brands list

Way forward:

- Government should educate people to enhance their communication skill, create sense of ownership, make them aware of the value of their culture and heritages and motivate them to take active participation
- Encouraging local entrepreneurs, private enterprises, investors and other tourism stakeholders to come under a common umbrella for basic rural infrastructure development activities is also essential.
- Product development as per tourists changing demands.
- Proper planning and conservation of natural resources and local heritages for the sustainable development of Tourism.
- Educate the people and develop their communication skill and language proficiency.
- Creating awareness regarding rural tourism benefits.
- Democratic movement that helps rural people at all levels to participate in tourism development activities.
- Conduct regular Government and/or private sponsored skill development programmes in identified rural area to train the rural people appointed in tourism business.
- Encourage young and potential business entrepreneurs for their businesses.
- Government initiatives to support the young entrepreneurs by providing loans.
- FDI or Private investment to introduces latest technology.
- Taking Tourism Circuit development approach for overall regional development.
- Take necessary safety and security measures for the tourists.
- Share information to make better business decisions.
- Any museum or interpretation centre can be set-up to provide information to tourists.

As the years rolled by the “Twin Balance Sheet problem” morphed into a “four balance sheet challenge” — comprising banks, infrastructure, plus NBFCs and real estate companies — for the economy. Discuss. (250 words)

Indian Express
Economic Time



Hindustan Times

Why this question:

India is facing a “Great Slowdown” with its economy headed for intensive care unit primarily due to a “second wave” of the twin balance sheet crisis at banks, former Chief Economic Adviser Arvind Subramanian has said. In a new working paper published by Harvard University’s Center for International Development last week, Arvind Subramanian, who was India’s chief economic advisor between October 2014 and August 2018, and Josh Felman, former IMF resident representative to India, give a detailed understanding of how the Indian economy lost its way.

Key demand of the question:

The question is in the backdrop of India’s Great Economic Slowdown. One must provide the details for the economic slowdown and how the twin-balance sheet is now a four-balance sheet problem. Provide measures to tackle the issue.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer

Introduction:

In brief explain what the economic slowdown in India. TBS-1 was about bank loans made to steel, power, and infrastructure sector companies during the investment boom of 2004-11 turning bad. TBS-2 is largely a post-demonetization phenomenon, involving non-banking financial companies (NBFCs) and real estate firms.

Body:

Explain about the twin-balance sheet syndrome.

Now move on to discuss the reasons for the TBS to become four balance sheet challenge

Since the Global Financial Crisis, India’s long-term growth has slowed as the two engines propelling rapid growth — investment and exports — sputtered.

Today, the other engine — consumption — has also stalled. As a result, growth has plummeted precipitously over the past few quarters

Dwelling into the current problem facing the economy, he said, after demonetization, considerable amounts of cash made their way to banks, who on-lent a major part of that to NBFCs. The NBFCs, in turn, channelled this money to the real estate sector. By 2017-18, NBFCs were accounting for roughly half of the estimated Rs 5 lakh crore of outstanding real estate loans.

The collapse of IL&FS in September 2018 was a “seismic event” not only because of the Rs 90,000 crore-plus debts of the infrastructure-cum-lending behemoth, but also its “prompting markets to wake up and reassess the entire NBFC sector

Provide measures to tackle it.

Conclusion:

Conclude by suggesting what should be the way forward.

Introduction:

India is facing a “Great Slowdown” with its economy headed for intensive care unit primarily due to a “second wave” of the twin balance sheet crisis at banks, former Chief Economic Adviser Arvind Subramanian has said. In a new working paper published by Harvard University’s Center for International Development last week, Arvind Subramanian, who was India’s chief economic advisor between October 2014 and August 2018, and Josh Felman, former IMF resident representative to India, give a detailed understanding of how the Indian economy lost its way. TBS-1 was about bank loans made to steel, power, and infrastructure sector companies during the investment boom of 2004-11 turning bad. TBS-2 is largely a post-demonetization phenomenon, involving non-banking financial companies (NBFCs) and real estate firms.

**Body:**

According to the paper, Indian economy is facing both **structural** (that is, more long-term issues related to the overall framework of the economy such as the flexibility or inflexibility of labour laws etc.) and **cyclical** (that is, more short-term issues such as a bad monsoon that disrupts production of food articles etc.) **challenges**.

Twin-balance sheet problem:

- In the Economic Survey of 2017-18 that the economy was facing a TBS problem. The two balance sheets he referred to belonged to **the Indian banks** (especially public sector banks or the government-owned banks) and the **corporate sector**, respectively.
- The balance sheets of Indian banks were burdened by a high proportion of non-performing loans and the balance sheet of corporates were clogged because they had over-borrowed and were unable to pay.
- The origins of India's TBS was traced to the economic boom that happened between 2005 and 2009.
- This was a period when economic prospects were rosy and the economy was growing at near double-digit growth rates.
- As such, companies threw caution to the wind and borrowed heavily in the hope of making profits in the future.
- The banks, especially the government-owned ones, too, ignored prudential norms and lent a lot of money to companies in the hope that this would help boost economic growth.
- The Economic prospects collapsed quite sharply after the Global Financial Crisis (GFC) and a high proportion of companies found that their projects were no longer viable.
- The end result was that the companies were left with huge loans they could not pay back in time and the banks were left with huge loans that had turned duds.
- This essentially meant that neither the Indian companies were in position to invest nor were the Indian banks in a position to lend.

Economy kept going from 2014 to 2018:

- even though the TBS problem remained unsolved yet, thanks to a sharp fall in crude oil prices, Indians experienced an income boost.
- government funded economic activity in the country not directly but indirectly through government backed institutions such as Food Corporation of India and National Highways Authority of India.
- These are called "off-budget" items which should ideally be counted in the fiscal deficit but are not.
- India's growth was boosted by a lending spree provided by non-banking financial companies (NBFCs) like IL&FS and DHFL.
- NBFCs took over the leading role of lending to the economy because banks were still struggling with NPAs and were largely unwilling to lend directly to businesses.



- The credit provided by NBFCs fuelled both private consumption and business investment, and through this route fuelled GDP growth.
- The authors state that these factors papered over the disruptions caused by demonetisation and GST introduction.

Towards “Four Balance Sheet” challenge:

- In short, there are two broad but interlinked reasons. One, the unresolved TBS problem, and two, the fall of NBFCs and the real estate sector. Together, they make for the **Four Balance Sheet Challenge for the Indian economy**.
- even after the introduction of the Insolvency and Bankruptcy Code (IBC) in December 2016. The data shows that the IBC resolution has been much slower than expected. Moreover, the recovery rates are nowhere near what were hoped for.
- while the unresolved TBS problem provided a progressively weakening ecosystem of banks and companies, the collapse of some of the leading NBFCs has proven to be trigger for the sharp growth deceleration.
- ILFS was a behemoth, with Rs. 90,000 crores of debt, so its failure sent shockwaves throughout the financial system.
- The failure was completely unexpected, prompting markets to wake up and re-assess the entire NBFC sector.
- Much of the NBFC lending had been channelled to one particular sector, real estate. And that sector itself was in a precarious situation.
- The real estate story is about builders launching numerous projects since the start of mid-2000s in the hope that these flats would be lapped up.
- But after the Global Financial Crisis, the demand for flats as well as bank funding for builders collapsed.
- The real estate sector was unable to pay back to the NBFCs, which, in turn, starting defaulting.

Measures needed:

- The first major action — almost a pre-condition for righting the economy — could be a **Data Big Bang**, which instil confidence and produce a reliable basis for policy making.
- This must comprise the **publication of unreleased reports together with a strategy for improving official statistics in at least three areas: the real sector** (GDP, consumption, and employment), **fiscal accounts**, and **stressed assets** in the banking system.
- A new asset quality review to cover banks and NBFCs must be conducted.
- Also changes to the Insolvency and Bankruptcy Code (IBC) be made to ensure that participants actually have incentives to solve the problem.
- Creation of two executive-led public sector asset restructuring companies (bad banks), one each for the real estate and power sectors, while at the same time strengthening oversight, especially of NBFCs.



- Recapitalization of banks should be linked to resolution and reforms such as shrinking public sector banking should be undertaken.
- The private final consumption expenditure, or spending by individuals, government spending, private investment and net exports. These engines need a spark in the upcoming Budget to be presented on February 1.

‘Government has no business being in business’. Examine in light of the India’s approach to disinvestment since liberalisation. Analyse whether there is a need to relook at the policy of disinvestment? (250 words)

The Hindu

The Hindu Business Line

Why this question:

Last month, the Cabinet approved sale of the government’s stake in Bharat Petroleum Corporation Limited, a navratna public sector company with oil refining and marketing operations. BPCL’s stake alone is expected to raise about ₹60,000 crore for the exchequer this year, and given the fiscal pressures the government is facing on the tax revenue front, such large-scale disinvestment will help.

Key demand of the question

One needs to examine the India’s path of disinvestment since liberalisation, discuss the macro features of the policy of disinvestment and analyse whether there is a need to have a relook at it.

Directive word

Examine – When asked to ‘Examine’, we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Analyse – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer

Introduction:

In a few introductory lines brief define the disinvestment. Give the context of recent sale of stakes in BPCL.

Body:

The question must discuss the following points:

Present the evolution of disinvestment in India.

Discuss how the disinvestment has fared and loopholes/challenges for disinvestment.

Mention the cases of air India sale, and the hesitant approach in case of IDBI etc. shows the reticence of government towards disinvestment.

Examine whether disinvestment has yielded results. Whether private management can take PSUs to bigger scales.

Also discuss why there is a need to remain cautious with respect to disinvestment and measures to attain the same.

Conclusion:

Give a balanced way forward.

Introduction:

Disinvestment, or divestment, refers to the act of a business or government selling or liquidating an asset or subsidiary or the process of dilution of a government’s stake in a Public Sector Undertaking (PSU). Last month, the Cabinet approved sale of the government’s stake in Bharat Petroleum Corporation Limited, a navratna public sector company with oil refining and marketing operations. BPCL’s stake alone is expected to raise about ₹60,000 crore for the exchequer this year, and given



the fiscal pressures the government is facing on the tax revenue front, such large-scale disinvestment will help.

Body:

India's approach to disinvestment since liberalisation:

- In the **Interim Budget of 1991-92**, it was announced that the Government would disinvest up to 20% of its equity in selected PSEs in favour of mutual funds and financial and institutional investors in public sector.
- In the **Budget speech of 1992-93**, the cap of 20% was reinstated and the list of eligible investors was enlarged to include FIIs, employees and OCBs.
- In April **1993**, the Rangarajan Committee recommended disinvesting up to 49% of PSEs equity for industries explicitly reserved for the public sector and over 74% in other industries. But the then Government did not take any decision on the Committee's recommendations.
- In **1996**, as per the Common Minimum Programme (CMP), the Budget speech of 1996-97 announced the setting up of Disinvestment Commission for 3 years (For more details about the Disinvestment Commission, click here). CMP also emphasized adding more transparency to the disinvestment process and examine the non – core areas of public sector.
- In the **Budget speech of 1998-99**, it was announced that the Government shareholding in CPSEs should be brought down to 26% on case-to-case basis, excluding strategic CPSEs where the Government would retain majority shareholding. The interest of workers was to be protected in all the cases. For this purpose, on 16 March 1999, the Government classified the PSEs into Strategic and Non-Strategic areas. It was decided that Strategic PSEs would be those in areas of:
 - Arms and ammunition and allied items of defence equipment, defence aircraft and warships
 - Atomic energy (except in the areas related to the generation of nuclear power and applications of radiation and radio-isotopes to agriculture, medicine and non-strategic industries)
 - Railway transport
 - All other PSEs were to be considered Non-Strategic.
- In the **Budget speech of 1999-2000**, it was announced that the Government would continue to strengthen the Strategic units and “privatizing” the Non-Strategic ones through gradual disinvestment or strategic sale and devise viable rehabilitation strategies for weak units.
- **The 2000-01 Budget speech** focused on restructuring and revival of viable CPSEs, closure of PSEs which cannot be revived; bringing down Government shareholdings in Non-Strategic CPSEs to 26% or lower, if necessary, and protection of the interest of workers. The receipts from disinvestment would be used for the social sector, restructuring of CPSEs and for retirement of public debt.



- In the suo motu statement of **2002**, specific aim was given to the Disinvestment Policy- modernization and upgradation of PSEs, creation of new assets, generation of employment and retiring of public debt.
- In the **Budget speech of 2003-04**, the Government announced details regarding the setting up of Disinvestment Fund and Asset Management Company to hold, manage and dispose the residual holdings of Government.
- In **2004**, with the change in the Government, there was a change in the outlook of Disinvestment Policy.
- In **2005**, the government formed a National Investment Fund or NIF, to which the proceeds of disinvestment were channelled. The mandate of the Fund, managed by professional investment managers, was to utilise 75% of annual funds in social sector schemes to promote education, health and employment.
- But with the **economic slowdown of 2008-09**, and later a drought, this was waived for three years — and later, in **2013**, restructured to provide flexibility in using the Fund.
- The NDA government has enjoyed the best of market conditions, with equities soaring in its first year, but like many previous governments, is yet to carry out asset sales consistently over a fiscal year — pushing it till the end, with resultant impact on valuation and proceeds.

India's current disinvestment policy (2014 onwards):

- Public Sector Undertakings are the wealth of the Nation and to ensure this wealth rests in the hands of the people, promote public ownership of CPSEs
- While pursuing disinvestment through minority stake sale in listed CPSEs, the Government will retain majority shareholding, i.e. at least 51 per cent of the shareholding and management control of the Public Sector Undertakings
- Strategic disinvestment by way of sale of substantial portion of Government shareholding in identified CPSEs upto 50 per cent or more, along with transfer of management control.

Outcome of disinvestment policy:

- While strategic sale deals in the past have seen a few mis-steps, they've also yielded convincing success stories like Hindustan Zinc's, which has seen a hundred-fold increase in its profits on the back of a six-fold expansion in capacities, since its takeover by Vedanta in 2002.

Need to relook at the policy of disinvestment:

- Government has mostly used disinvestment for fiscal reasons rather than growth objectives.
- Process of disinvestment is not favoured socially as it is against the interests of socially disadvantaged people.
- Loss making units don't attract investment so easily.
- Over the years the policy of divestment has increasingly become a tool to raise resources to cover the fiscal deficit with little focus on market discipline or strategic objective.



- Government presence in non-strategic sectors not only distorts competitive dynamics for private players, it also results in consumers and taxpayers bearing the brunt of inefficient PSU operations.
- Sometimes with the emergence of private monopolies consumer welfare will be reduced.
- Mere change of ownership from public to private does not ensure higher efficiency and productivity.
- It may lead to retrenchment of workers who will be deprived of the means of their livelihood.
- Private sector governed as they are by profit motive has a tendency to use capital intensive techniques which will worsen unemployment problem in India.

Way forward:

- Define the priority sectors for the government based on its strategic interests.
- Investment in PSU's has to be in terms of generation of adequate social and strategic returns.
- Financial return cannot be the sole reason for investment in PSUs. They have to serve social/strategic purposes. The key role of a PSU is to maintain competition in the sector and limit excessive monopoly.
- Government ownership is required for sectors with strategic relevance such as defence, natural resources, etc. The government should, therefore, exit non-strategic sectors such as hotels, soaps, airlines, travel agencies and the manufacture and sale of alcohol.
- The outlook towards strategic divestment should move from the current policy of emphasizing on public ownership and retaining majority shareholding to looking at the strategic interest.
- It is important to realize that ownership is not a substitute for regulation. Therefore, instead of creating PSUs in non-priority sectors, the government should look into strengthening the regulatory framework that ensures efficient market conditions. The regulations should also ensure that the basic necessities of the consumers are met.

Stagflation is said to happen when an economy faces stagnant growth as well as persistently high inflation. Is India facing stagflation? Analyse with suitable justifications for your answer. (250 words)

Indian Express

Why this question:

Last week, Finance Minister Nirmala Sitharaman refused to comment on queries on stagflation. But with fast decelerating economic growth and sharply rising inflation, there is a growing murmur about India facing stagflation.

Key demand of the question:

One has to analyse the context of Stagflation currently witnessing the Indian economy.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:



In first define what stagflation is – Stagflation is a portmanteau of stagnant growth and rising inflation. Typically, inflation rises when the economy is growing fast.

Body:

Explain the concept of stagflation in detail.

Discuss the past experiences of stagflation in the Indian economy; The most famous case of stagflation happened in the early and mid-1970s when OPEC (The Organization of Petroleum Exporting Countries), which works like a cartel, decided to cut supply and sent oil prices soaring across the world. On the one hand, the rise in oil prices constrained the productive capacity of most western economies that heavily depended on oil, thus hampering economic growth.

Discuss what needs to be done.

Conclusion: *Conclude with way forward.*

Introduction:

Stagflation, as defined by Princeton economist **Alan S. Blinder**, is “the simultaneous occurrence of economic stagnation and comparatively high rates of inflation”. It is said to happen when an economy faces stagnant growth as well as persistently high inflation

Body:

Stagflation:

- Stagflation is a portmanteau of stagnant growth and rising inflation.
- Typically, inflation rises when the economy is growing fast.
- That’s because people are earning more and more money and are capable of paying higher prices for the same quantity of goods.
- When the economy stalls, inflation tends to dip as well – again because there is less money now chasing the same quantity of goods.
- Stagflation is said to happen when an economy faces stagnant growth as well as persistently high inflation.
- That’s because with stalled economic growth, unemployment tends to rise and existing incomes do not rise fast enough and yet, people have to contend with rising inflation.
- So people find themselves pressurised from both sides as their purchasing power is reduced.

Current economic scenario in India:

- According to the National Statistical Office (NSO), the Consumer Food Price Index increased from 5.11% in September 2019 to 7.89% in October 2019.
- The retail price inflation rate reached an annual high at 4.62%. The government itself has admitted that growth has slowed.
- Over the past 6 quarters, economic growth in India has decelerated with every quarter.
- The recent NSO estimates of gross domestic product (GDP) for the second quarter of 2019-20 reported a further reduction in the growth rate of GDP to 4.5%, the lowest since 2012-13.



- India's gross domestic product (GDP) growth has dropped to 4.5% in the July-September quarter of 2019-20, a free fall from the government's ambitious call for a double-digit growth not so long ago.
- The fall has been sudden although not entirely unexpected. In the first quarter of 2016-17, India registered a spectacular GDP growth of 9.4%. Today, it's struggling at a 26-quarter low
- Inflation for the rest of the financial year is expected to stay above the RBI's comfort level of 4%.
- So, with growth decelerating every quarter and now inflation rising up every month, there are growing concerns of stagflation in India

Indian economy and stagflation:

- Although it appears so at the first glance, India is not yet facing stagflation.
- India is not growing as fast as it had in the past or as fast as it could.
- However, it is still growing at 5%, and is expected to grow faster in the coming years.
- India's growth has not yet stalled and declined.
- In other words, year on year, India's GDP has grown in absolute number, not declined.
- However, it is true that retail inflation has been quite high in the past few months.
- But, the reason for this spike is only temporary.
- It has been caused by a spurt in agricultural commodities after some unseasonal rains.
- So, with better food management, food inflation is expected to come down.
- The core inflation (inflation without taking into account food and fuel) is still in the safe zone.
- Moreover, retail inflation has been well within the RBI's target level of 4% for most of the year.
- So, a sudden spike of a few months, which is likely to flatten out in the next few months, is a premature criterion for the stagflation claims or concerns.

Measures taken by the Government now:

- First it withdrew the super-rich surcharge levied on foreign portfolio investors and then rolled out a series of measures, including corporate tax cut and the proposal to set up a Rs 25,000 crore fund to revive the realty sector.
- The RBI, for its part, has already lowered its benchmark interest rate (repo rate) five times during this calendar year, taking the cumulative cuts to 135 basis points, from 6.5% in January to 5.15% in October, even as the Consumer Price Index (CPI)-based inflation shot.
- To avoid further economic turbulence, the Centre has pressed the pause button on banning single-use plastics as well as the quick replacement of fossil fuel-guzzling automobiles with electric vehicles.

Structural measures needed:



- The Reserve Bank of India (RBI) can quickly increase the amount of cash in the economy.
- Then banks, especially public sector banks, can use that together with interest rate policy to provide easy credit. A larger supply of credit should lead to cheaper credit.
- This will have to be supported by reduction of the administered price of credit, which is the RBI's repo rate.
- There could be hurdles to credit off-take due to fiduciary or prudential reasons, so those need to be tackled. Same for mismatched expectations.
- Higher liquidity and disposable income, and increased employment can pull us out of the quagmire.
- reduction and reform of direct individual and corporate taxes, and indirect taxes.
- Labour laws also need to be amended to generate employment.
- The government needs to hold granular conversations with the private sector.
- A skills and industrial policy which can make full use of an abundant pool of reasonably priced labour

Conclusion:

The current economic slowdown is an outcome of supply-side constraints and not demand-side constraints. We need to produce things that Indians earning minimum wages can afford, so that the aggregate demand will increase.

Time has come to have a re-look at the whole policy for Dairy sector and move from white revolution 2.0 to 3.0 and device steps so that the interests of the Indian farmers and consumers are protected. Elucidate in the backdrop of the statement where in unveiling White Revolution 2.0 is projected to amalgamate the milk production in the country and make India as a global leader. (250 words)

Financial Express

Why this question:

Niti Aayog estimates that the country is expected to increase its milk production to 330 million metric tonnes (mt) in 2033–34 from the current level of 176 mt.

Thus the question aims to analyse the prospects of white revolution 3.0 in the country.

Key demand of the question:

One must discuss the prospects and future of the Dairy sector and the possibility of moving forward to white revolution 3.0.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In 2019, India emerged as the largest milk producer and consumer. Discuss the facts brought out by the NITI Aayog.

Body:

Explain the prospects of white revolution in the country.

Bring out the transition from past to present.



Explain the key features of white revolution 2.0 and discuss in detail how India can move forward to white revolution 3.0.

Discuss the possible challenges and how they can be addressed.

Conclusion:

Conclude with way forward.

Introduction:

The huge increase in milk supply through concerted efforts on a cooperative level is known as the **White Revolution**. Forty-eight years after **Operation Flood** – that made India the world's largest milk producer – India continues to be on the lookout for the next breakthrough in agricultural produce and productivity. White Revolution 2.0 has effectuated dairy firms' marketing strategy for milk and milk products, resuscitating the outlook of product-market mix.

Body:

Milk production in India:

- India emerged as the largest milk producer and consumer in 2019.
- Niti Aayog estimates that the country is expected to increase its milk production to 330 million metric tonnes (mt) in 2033–34 from the current level of 176 mt.
- Currently India has 17% of world output of dairy products, surpassing USA in 1998 as world's largest producer of dairy. All this was achieved by operation Flood which was launched in 1970's.
- According to market research company IMARC, the milk and dairy products industry reached Rs7.9 lakh crore in 2017.
- In 2016, the milk sector alone was valued at Rs3 lakh crore and is projected to scale Rs7.3 lakh crore by 2021.
- The per capita milk availability in India has gone up from 126 gm per day in 1960 to 359 gm per day in 2015.

Potential of White Revolution 2.0:

- Post-liberalisation and Milk and Milk Products Order (2002) was abolished, dairy businesses observed a radical shift toward a strategic product diversification towards functional and traceable foods like nutrition-based health drinks, packaged milk products (such as paneer), and frozen/probiotic products and so on.
- Market structure, conduct, and performance has dramatically changed post 2000s. Besides the established cooperative federations like Amul, other state cooperative federations and multinationals (namely, Nestle, Danon, and Lactalis) are aggressively harnessing the untapped business potential.
- White revolution 2.0 can strengthen the scope of vertical integration between cattle feed industries, dairy machinery firms, producer cooperatives unions, state marketing federations, advertising and marketing firms, logistics and distribution agencies.



- The dairy industry in India is unique. With six lakh villages housing about 90 crore people, dairying is not just a large economic activity but also an integral part of our social and cultural heritage
- Can help small farmers to reduce dependence on crop sales
- Can increase source of income of farmers in low yielding areas like Marathwada, Bundelkhand etc
- India is surrounded by countries and regions that are milk-deficient, such as the Middle East, South Asia and Southeast Asia.
- There is ample scope for export of value-added milk products to Bangladesh, China, Singapore, Thailand, Malaysia, Philippines, Japan, the UAE, Oman and other gulf countries, all of which are located close to India.
- At present, the population of South Asia alone is growing at 1.3 per cent a year; it is likely to be 2.2 billion by 2050. This presents an opportunity for India's dairy industry

Challenges to White Revolution 2.0:

- The Indian cows and buffaloes are generally low yielding and non-descript because of the lack of healthy cattle-feed and fodder, tropical heat and diseases.
- Despite lack of water and gradually declining arable land, dairy farming is on the rise.
- Free trade agreements, or FTAs, for instance, will allow EU government-subsidised products to be imported from Europe with little entry barriers. This will pose a big challenge to cow-farmers.
- Due to unhygienic production, handling conditions and high temperatures, the quality of milk is adversely affected.
- Because of inadequate marketing facilities, most of the marketable surplus is sold in the form of ghee which is the least remunerative of all milk products.

Measures needed:

- Increase in the market share depends on how dairy firms' capabilities and their resources are utilised given the opportunities and threats emanating from emerging markets economies.
- Contract/corporate dairying and emerging global dairy trade are required to rope in dairy supply chains stakeholders in order to expand their outreach and "on-the-go" product positioning into the target segment.
- Digital technology-enabled dairy firms need to identify their compatible partners and competitors for co-creation through product-process innovation via relationship/value-based marketing.
- Freshness in milk, and convenience to store milk or milk products can be a technology innovation brought in by large dairy firms in association start-ups.
- Education and Training at Panchayat level for small and medium size farmers
- Subsidizing cattle production and encouraging cattle markets



- Facility of logistics for produced milk
- Improved Veterinary facility specially in artificial insemination of cattle
- Encouraging private sector firm to procure dairy produced at rural level
- Low interest loans for small and medium scale farmers for cattle purchase
- Encouraging rural women to take up animal husbandry
- Insurance of cattle against diseases like Anthrax, Foot and Mouth, Peste des Ruminantes, etc.
- Nurture dairy entrepreneurs through effective training of youth at the village level coupled with dedicated leadership and professional management of farmers' institutions.
- Agricultural practices, sanitation, quality of drinking water & fodder, type and quality of pipelines – all of these need to be aligned to the goal of healthy milk

India Post will have to shed its half-hearted attempts to transform itself into a payments bank if it wants to convert itself into a digitally enabled, pure deposit-taking bank.

Discuss in detail the issues faced by India post and suggest way forward. (250 words)

The Hindu

Why this question:

The article explains that If India Post can shed its half-hearted attempts to transform itself into a payments bank and convert itself into a digitally enabled, pure deposit-taking bank; it can render a yeoman service both to the government and small savers of this country.

Key demand of the question:

One must explain the trends that have recently witnessed in the Indian post and the challenges it has been facing. Also suggest solutions to address the same.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Explain the current case – The confidence that ordinary Indian savers repose in guaranteed return products has been subjected to hard knocks off late.

Body:

One must provide for a detailed analysis of the issues and challenges posing the India Post despite it taking the path of digitization, online services.

Discuss the positive prospects it can have in future if the challenges are addressed.

Mention the challenges and concerns currently being faced.

Suggest solutions to the same.

Conclusion:

Conclude with way forward.

Introduction:

The Department of Posts (DoP), trading as **India Post**, is a government-operated postal system in India, which is a subsidiary of the Ministry of Communications. Generally called “the post office” in India, it is the most widely distributed postal system in the world. Founded in 1854 by Lord



Dalhousie who laid the foundation for the modern Indian postal service. With **155,015 post offices**, India Post has the most widely distributed postal network in the world. The country has been divided into **23 postal circles**, each circle headed by a Chief Postmaster General.

Body:**Issues with the IndiaPost:**

- **Issue of financial literacy:**
 - it is quite impossible to follow for a majority of households in India which have a subsistence level of income and scant access to financial literacy.
 - A survey on financial literacy among Indian savers by the **Tarun Ramadorai committee** in 2015, found that over 30% of savers did not grasp the concept of compound interest.
- **Lack of Options:**
 - Indian savers have felt a need for 10-year or 20-year fixed return instruments to park their long-term money.
 - Investors who would like a longer-term option have just two choices — the Public Provident Fund (PPF, 15 years) and Kisan Vikas Patra (KVP, 9 years), as the Sukanya Samriddhi Yojana is restricted to those with a girl child.
 - most post office schemes offer tax breaks on the principal invested under Section 80C but their returns are taxed at income tax slab rates (the only exceptions being PPF and Sukanya Samriddhi).
- **Poor customer service:**
 - The foremost reason savers cite in shying away from post office schemes — despite their safety and reasonable returns — is the woefully poor customer service that they need to deal with.
- Most post office schemes offer tax breaks on the principal invested under Section 80C but their returns are taxed at income tax slab rates
- **Lack of Digitization:**
 - India Post continues to rely on archaic modes of working in dealing with customers.
 - Its insistence on a paper application process, old-fashioned passbooks, cheque payments and branch visits ensures a process that is time-consuming and arduous for those seeking to invest their money with it.

Measures needed:

- the crying need for Indian savers to have access to simple fixed return products that offer complete safety of capital without their having to dig into balance sheets.
- There is a need for Small savers to have the predictability of a fixed return for the long term. But given their limited savings, they also need early exit options in case they are beset by an emergency.



- Doing away with bureaucratic rules for investors to get their hands on their own money is critical to make post office schemes more attractive to their target audience
- Re-introducing National Savings Certificates in the 10, 15 and 20-year tenors can meet this need while helping the Central government source long-term funds for capital spending.
- IndiaPost must learn from the private organizations who make deposit investing such a seamless experience for their customers.

Conclusion:

IndiaPost has the potential to convert itself into a digitally enabled, pure deposit-taking bank, it can render a yeoman service both to the government and small savers of this country.

Discuss the concept of monetary transmission mechanism. Explain in what way it can facilitate RBI in ensuring the pass-through of its policy decisions. (250 words)

Economic Times

Why this question:

The question is based on the concept of Monetary transmission and the article provides a detailed analysis of the concept as applied to the Indian economy.

Key demand of the question:

Explain and discuss the concept of monetary transmission in detail, explain its importance to the context of Indian economy.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Define what Monetary transmission mechanism is.

Body:

The monetary transmission mechanism is the process by which asset prices and general economic conditions are affected as a result of monetary policy decisions. Such decisions are intended to influence the aggregate demand, interest rates, and amounts of money and credit in order to affect overall economic performance.

The traditional monetary transmission mechanism occurs through interest rate channels, which affect interest rates, costs of borrowing, levels of physical investment, and aggregate demand. Additionally, aggregate demand can be affected through friction in the credit markets, known as the credit view. In short, the monetary transmission mechanism can be defined as the link between monetary policy and aggregate demand.

Monetary transmission is the process through which RBI's policy actions reach its effective end goal of tackling inflation and addressing growth concerns.

Take hints from the article and explain why monetary transmission is important to Indian context.

Conclusion:

Conclude with the benefits of inculcating such mechanism.

Introduction:

The monetary policy refers to a regulatory policy whereby the central bank maintains its control over the supply of money to achieve the general economic goals. Since February 2019, the Reserve Bank of India (RBI) has aggressively cut the repo rate. By cutting the repo rate, the RBI has been sending a signal to the rest of the banking system that the lending rates should come down.



The Monetary Policy Committee of the Reserve Bank of India (RBI) decided to keep the interest rate unchanged at 5.15% in the fifth bimonthly policy review (Dec 2019), citing inflation concerns despite economic growth continuing to slow down.

Body:

Monetary policy scenario in India:

- In India, the process of monetary policy transmission is inefficient.
- For example, between February and December, the RBI cut repo rate from 6.5% to 5.15%.
- But, the interest rate charged by banks on fresh loans fell just 27% of the amount by which the repo rate came down.
- Further, RBI has urged banks to link their lending rates to the repo rate

Reasons for poor monetary policy transmission:

- Repo rates have little impact on a bank's overall cost of funds.
- Reducing lending rates just because the repo rate has been cut is not feasible for banks.
- This is because, for banks to be viable, there must be a clear difference between the lending rate (charged on loans) and the deposit rate (given on deposits).
- The difference between the two has to be not only positive but also big enough for the bank to make profits.
- Notably, to attract deposits, banks pay a high deposit rate.
- Such deposits make up almost 80% of all banks' funds from which they then lend to borrowers.
- On the other hand, banks borrow a minuscule fraction from the RBI under the repo.
- So even sharply reducing the repo rate does not change the overall cost of funds for the banks.
- In effect, unless banks reduce their deposit rates, they will not be able to reduce their lending rates.
- However, if a bank were to reduce its deposit rates, depositors would shift to a rival bank that pays better interest rates.
- Otherwise, they would park more of their savings in small saving instruments (public provident fund, Sukanya Samridhi Yojana, etc.) that pay much higher interest rates.
- Also, 65% of total deposits are "term" deposits (fixed for a certain duration) and take, on an average, up to 2 years to get repriced at fresh rates.
- So, banks cannot always reduce deposit rates immediately as deposits take longer to get repriced.
- Moreover, if banks are under pressure to reduce the interest rate they charge on new loans, they could possibly push up the interest rates on old loans that allow for such flexibility.

Measures needed:

Telegram: <https://t.me/insightsIAStips>

Youtube: <https://www.youtube.com/channel/UCpocbcX9GEIwaile4HLjwA>

Facebook: <https://www.facebook.com/insightsonindia>



- Enabling effective monetary transmission would not only increase the credibility of the Central Bank but also help in strengthening the financial structure.
- Impounding of bank money by RBI is too high with 4% cash reserve ratio carrying no return whatsoever.
- To make transmission work, the least the RBI can do is to reduce CRR.
- Timely transmission of policy rates could be considerably improved if the banking sector's non-performing assets (NPAs) are resolved more quickly and efficiently.
- If the government wants to reduce lending rates, it could focus on bringing down its own fiscal deficit and public sector borrowing.
- At the current low levels of per capita income, the savers are far more risk-averse in India and unwilling to invest in higher-risk instruments other than bank deposits.
- For a repo-linked regime to work, the whole banking system in India would have to shift to that.
- In other words, along with banks' lending rates, their deposit rates too must go up and down with the repo.

The present economic slowdown is a consequence of both cyclical and structural factors. Comment. (250 words)

The Hindu

Why this question:

India is now in the midst of a significant economic slowdown, the International Monetary Fund has said, urging the government to take urgent policy actions to address the current prolonged downturn.

Key demand of the question:

Explain the recent trends being witnessed in the economy and provide for an analysis as to in what way it is the result of both cyclical and structural factors.

Directive:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

Briefly discuss what a cyclic slowdown is; A cyclical slowdown is a period of weak economic growth that occurs at regular intervals. A structural slowdown is a more deep-rooted phenomenon signifying weak economic growth for over a long time.

Body:

Discuss first the structural factors responsible for these issues ranging from investment, Failure of the Insolvency and Bankruptcy Code (IBC), Unemployment etc.

Discuss then the cyclical factors – consumption, savings factor etc.

Explain the recent steps taken by the govt. and the RBI.

Suggest way forward.

Conclusion:

Conclude by suggesting solutions and suggestions as to what can be done to address these issues.

Introduction:

According to a research paper by former Chief Economic Adviser Arvind Subramanian, Indian economy is facing both **structural** (that is, more long-term issues related to the overall framework of



the economy such as the flexibility or inflexibility of labour laws etc.) and **cyclical** (that is, more short-term issues such as a bad monsoon that disrupts production of food articles etc.) **challenges**.

Body:

Reasons for economic slowdown:

Cyclical factors:

- Poor policy making like FPI surcharge, angel tax, penalizing for non-compliance of Corporate Social Responsibility (CSR) have deterred investments in the economy thereby affecting the GDP growth.
- Tightening monetary and fiscal policies have left little room for the government to increase its spending to pump-prime the economy.

Shadow banking stress (NBFC crisis):

- NPAs of Banks and Too Much Debt on corporates affecting investment cycle- NPAs have resulted tightening of lending leading to a freeze on investment by industrial houses and corporates. The IL&FS crisis also triggered the Non-Banking Financial Companies' (NBFC) credit crunch in 2018.
- While the unresolved TBS problem provided a progressively weakening ecosystem of banks and companies, the collapse of some of the leading NBFCs has proven to be trigger for the sharp growth deceleration.
- The failure was completely unexpected, prompting markets to wake up and re-assess the entire NBFC sector.
- Much of the NBFC lending had been channeled to one particular sector, real estate. And that sector itself was in a precarious situation.

Weaker global demand:

- India is a net commodity exporter and thus there has been a slump in the volumes of exports due to global slowdown.
- With rising retreat of globalization like Brexit, Trump's protectionist policies and the US-China trade war, global sentiments have remained poor making the prospects of an export led growth bleak.

Structural factors include:

- The slowdown is also part of a longer-term structural shift wherein the Economy is shifting gears from the high investment era to a low investment era as well as a transition from being cash-driven economy to a digitally enabled economy.
- Irregular monsoonal pattern causing droughts in some parts and floods in another has severely affected the agricultural output, transportation facilities leading to imbalance in trade of commodities thereby affecting the economic growth.
- Demonetization and GST has led to a collapse in private consumption as consumers suddenly prefer to hoard cash or keep it in the bank and investments have also been



affected mainly by the small and medium businesses (SMEs) as they are forced to withhold inventories until they are compliant with the new rules and regulations.

- The rates of savings and investment in the Indian economy have declined, as also exports and total credit.
- This has led to a slowdown among the major industries, like the automobiles, diamond, textiles industry, and several Micro, Small and Medium Enterprises (MSME) are experiencing a continuous decline, which has led to the retrenchment of 3.5 lakh workers so far.
- Agriculture is in crisis today on account of rising costs of inputs and low prices of produces, and low public investments in this sector.
- Apart from it, there is income stagnation in urban areas.
- The slowdown in consumption is the major worry for India's economic slump (consumption has been the main driver of India's growth).
- There is a sharp fall in Private Consumption and as well as Public Expenditure.

Measures needed:

- The Reserve Bank of India (RBI) can quickly increase the amount of cash in the economy.
- Then banks, especially public sector banks, can use that together with interest rate policy to provide easy credit. A larger supply of credit should lead to cheaper credit.
- This will have to be supported by reduction of the administered price of credit, which is the RBI's repo rate.
- There could be hurdles to credit off-take due to fiduciary or prudential reasons, so those need to be tackled. Same for mismatched expectations.
- Higher liquidity and disposable income, and increased employment can pull us out of the quagmire.
- reduction and reform of direct individual and corporate taxes, and indirect taxes.
- Labour laws also need to be amended to generate employment.
- The government needs to hold granular conversations with the private sector.
- A skills and industrial policy which can make full use of an abundant pool of reasonably priced labour

Critically examine the double trouble Indian economy is facing – the problem of decreasing economic growth rate and increasing. (250 words)

The Hindu

Why this question:

The article brings out a detailed discussion of the double whammy Indian economy is facing.

Key demand of the question:

Discuss in detail the double trouble Indian economy is facing – the problem of decreasing economic growth rate and increasing

Directive:

Critically examine – When asked to 'Examine', we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question.



While doing so we should explain why these facts and issues are important and their implications. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgment.

Structure of the answer:

Introduction:

Define inflation and the trends of growth witnessing the Indian economy.

Body:

Uneven inflation and sluggish growth present serious dilemmas for policymakers in the country as prices in the economy continue to rise even as economic growth has plummeted to well under 5%. Food inflation, now in double-digits, has caused significant pain. The International Monetary Fund on December 23 called for "urgent" policy measures to reverse the current slowdown that has weighed down global economic growth.

Discuss the causative factors in detail.

Explain what needs to be done to overcome the issue.

Conclusion:

Conclude by suggesting solutions to the problem.

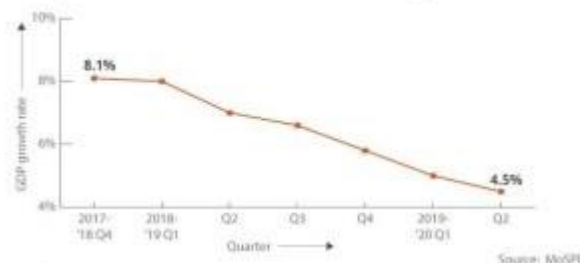
Introduction:

India's GDP growth rate has been decreasing. From the level of 8.1% in the fourth quarter of 2017-18, its quarterly GDP growth has fallen to 5% in the second quarter of 2019-20 (six-year low).

Uneven inflation and sluggish growth present serious dilemmas for policymakers. The prices in the economy continue to rise. Food inflation, now in double-digits, has caused significant pain.

Body:

GDP growth rate has contracted for six quarters



Concerns:

- the non-uniform nature of the current price rise.
- food inflation has crossed the 10% mark for the first time in many years
- Even as food prices have risen rapidly, sectors such as manufacturing have witnessed mild deflation as demand for products drops.
- The central bank's hands have been tied down by the recent spike in inflation, and it has halted its rate cut spree that began in February this year.
- Policymakers, however, tend to view the economy as an entity with a general price level that responds in predictable ways to their policy actions. Such an assumption is likely to cause practical difficulties in implementing policy.



- Indian economy just witnessed a debt-fueled boom followed by a sharp bust in growth rates, it is natural to expect the prices of various goods to adjust in accordance with underlying consumer desires to varying degrees.

Inflation – real or anomaly:

- RBI has termed the recent spike in inflation as a transient phenomenon.
- the rise in food prices may just be an anomaly amid widespread low inflation in the rest of the economy.
- The current food price inflation may be the result of seasonal factors that have affected crop production.
- If so, it should certainly be a transient phenomenon that will not trouble policymakers for anything beyond a few quarters.

Way forward:

- The Reserve Bank of India (RBI) Governor has called for countercyclical measures and structural reforms to help the economy.
- The government should concentrate on the supply-side reforms to both rein in inflation and reverse the economic slowdown.
- Exports can help to stimulate the economy since exports are influenced by the state of the economy in the rest of the world.
- A focused increase in capital expenditures of the Government and the Central public sector undertakings (PSUs) may help to apply the brakes on the slowdown. It might also help to “crowd in” private investment.
- Reform of the Goods and Services Tax (GST) is very much needed.

Deliberate upon the reform measures that can aid India to rise in terms of economic growth to the baseline medium-term potential and help drive growth in a sustainable way. (250 words)

Business Standard

Economic Times

Why this question:

The article is in the backdrop of the recent IMF that has listed reform measures that might help India increase economic growth to the baseline medium-term potential of 7.3 percent.

Key demand of the question:

Explain the necessity of reforms that can help India to increase economic growth to the baseline medium-term potential and help push up growth in a sustainable way.

Directive:

Deliberate – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In general discuss the persistent issues brought out by the IMF.

Body:

Briefly discuss the suggestions made by the IMF.



What are the issues with the economy in the country?

Suggest what reforms can be made to overcome the challenges.

Conclusion:

Conclude by suggesting reforms – both long term and for short term.

Introduction:

India is in the midst of a significant economic slowdown. Declining consumption and investment, and falling tax revenue, have combined with other factors to put the brakes on one of the fastest growing economies in the world. The IMF has listed reform measures that might help India increase economic growth to the baseline medium-term potential of 7.3 per cent.

Body:



Reasons for growing slowdown despite measures:

- Although the government has infused a significant amount of capital into PSBs, there is practically no movement in terms of governance reforms.
- In the absence of such reforms, PSBs would remain prone to the same errors and undermine an efficient allocation of credit, which will affect overall economic growth in the medium term.
- crowding out caused by higher public sector borrowing requirement, which exceeds the net household financial savings of 6.6 per cent of GDP.
- the Reserve Bank of India has started managing yields by buying longer-dated bonds and selling short-tenor bonds, which would also help the government borrow at lower rates. However, measures like these have limitations and could unnecessarily complicate policy management of the central bank.
- the policy space on the fiscal side is virtually non-existent and there are limitations to the extent monetary policy can support growth in the given macro environment

Reform measures:

- the clean-up of bank balance sheets should be completed along with strengthening governance in public sector banks (PSBs) and better oversight of non-banking financial companies (NBFCs).



- the central bank will need to augment regulatory capacity for better oversight of the system, including the NBFC sector.
- fiscal consolidation in the medium term should be anchored to the recommendations of the Fiscal Responsibility and Budget Management Act review committee.
- the use of off-budget financing, which makes the headline deficit number less meaningful. There is an urgent need to improve transparency.
- fiscal stimulus should be avoided at this stage, as evidently, a significantly higher level of government borrowing will push up the cost of money.
- The government would need to be mindful of the risks associated with fiscal slippage at this stage.
- to boost growth, among other things, the government should focus on reforms in product, labour and land markets.
- the government should focus on wider reforms that will help increase growth in the medium term

Conclusion:

India's substantial growth potential depends critically on the implementation of the growth-enhancing structural reforms. Further, there is a strong case for trade liberalization to support growth and employment. The economy clearly needs policy intervention to help push up growth in a sustainable way. There is a need for urgent steps to reverse slowdown while continuing with credible fiscal consolidation and cautioning against fiscal measures to support growth.

A refreshed 'Digital India' programme will play critical role in the pursuit of \$5 trillion economy. Comment.(250 words)

The Hindu

Why this question:

The question is in the context of Finance Minister's announcement on waiver of Merchant Discount Rate (MDR) on digital payments.

Key demand of the question:

The question expects one to comment upon the role of Digital India programme and the essence of it to \$5 trillion economy.

Directive:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

Discuss that In the past few years, digital technology has become a vital factor in accelerating the pace of India's economic growth, in promoting social and economic equity by enhancing access for all to information, markets and public services; and in overcoming the country's infrastructure deficit.

Body:

Explain the idea behind digital India.

Discuss the steps taken by the government in this direction.

Discuss the benefits of the programme.

Analyse the challenges and concerns associated.

Conclusion:

Conclude by reasserting its role in augmenting the dream of \$5 trillion economy.

**Introduction:**

According to a recent study by industry association Internet and Mobile Association of India (IAMAI), **Digitization of services will be an essential step towards achieving the \$5 trillion goal.** True to the tenets of the fourth industrial revolution, the next phase of India's prosperity will be driven by digitalization with next-generation technologies. The nation's naturally tech-savvy demography – **1.2 billion mobile phone connections, 560 million internet subscriptions, and over 350 million smartphones** – will serve as the fulcrum of an inclusive digital transformation.

Body:

India's **digital consumer base is the world's second-largest**, as well as the **second-fastest growing among 17 major economies**, as per findings of the latest **India Economic Survey**. And this base is core to the creation of future economic value and societal empowerment as digital solutions backed by new-gen technologies such as artificial intelligence (AI), internet of things (IoT) and automation become ubiquitous.

Digital India:

- The 'Digital India' initiative was launched by Prime Minister Narendra Modi on 1 July 2015.
- It has been launched with an aim of transforming the country into a digitally empowered society and knowledge economy.
- It would ensure that Government services are available to citizens electronically.
- It would also bring in public accountability through mandated delivery of government's services electronically
- Four years on, there have been dramatic improvements in all of its three key facets: in the **creation of pervasive national digital infrastructure**, in the **electronic delivery of public services** and **financial succour to citizens**, and in **enhancing digital awareness and literacy**.

Steps taken by the Government of India in promotion of Digital India:

- **Digilockers:** it is a "digital locker" service operated by the Government of India that enables Indian citizens to store certain official documents on the cloud. The service is aimed towards reducing the need to carry physical documents.
- **BHIM app:** It is an app to enable digital payments. BHIM app was used to facilitate 913 million transactions in 2017-18.
- **JAM Trinity**, a union of Jan Dhan-Aadhaar-Mobile number will better contribute to nation-building and overall economic progress. Digitalization has already helped disburse over \$86.4 billion directly to the bank accounts of beneficiaries spanning over 430 government schemes since 2015 while saving around \$15.3 in the process by plugging channel inefficiencies.
- **Pradhan Mantri Gramin Digital Saksharatha Abhiyan** to make citizen digitally literate. The project is expected to be one of the largest initiatives of the country with an overall target of training 6 crore students until the financial year, 2019. The government has accepted 250,000 Gram Panchayats to register at least 200-300 candidates each.



- **India's digital economy** will touch \$1 trillion by the year 2022. India would be \$10 trillion economy by 2030 and half of it would be the digital economy.
- More than 12,000 rural post office branches have been linked digitally and soon payment banking would also become a reality for them.
- The government also plans to make 'digital village' across the country, by linking all schemes with technology. The 'digital village' would be powered by LED lighting, solar energy, skill development centres and e-services like e-education and e-health.
- Electronic transactions related to e-governance projects in the country have almost doubled in 2015, owing to the Digital India Programme. According to government website electronic transaction aggregation and analysis layer (**eTaal**), 3.53 billion transactions took place in 2014, which almost doubled in 2015 to 6.95 billion.
- The progressive policies and aggressive focus on 'Make in India' have played a significant role in the resurgence of the electronics manufacturing sector.
- Implementation of **Aadhaar** – the biometric digital identity program spanning 1.2 billion citizens, and **the Goods and Services Tax (GST)** – which brought more than 10 million businesses online – have been the hallmarks of large-scale digitalization in India.

Need for a refreshed Digital India:

- One of the most promising outcomes of India's digital transformation experiment is its role in catalyzing the energies and in meeting the blossoming aspirations of India's youth, who have a natural flair for technology.
- Apart from the iconic start-ups that have metamorphosed into unicorns, thousands of technology enterprises and BPOs are sprouting across small-town and rural India.
- With the government's 365,000 Citizen's Service Centres [CSCs] providing employment to a million small entrepreneurs, as well as access to information and services to millions.
- The creation of a nationwide digital infrastructure, allied with potent new tools and technologies that are on the anvil: AI, Big Data, and the Internet of Things [IOT].
- These are expected to galvanize sectors that affect the well-being of every Indian, ranging from agriculture, that can benefit from the infusion of technological intelligence, to natural-resource management, energy-use, transportation, urban-infrastructure and manufacturing.
- Indeed, there is practically no aspect of modern life that cannot be improved by the application of intelligent digitization. India is striving to become one of the early adopters of 5G technology, and its induction is expected to multiply possibilities and opportunities across the spectrum in ways that we cannot fathom now.

Challenges:

- The BharatNet project has been delayed several times which proposes to give internet connection to 2.5 lakh villages.
- Delayed roll-out of Wi-Fi hotspots and the slow speed, in comparison to other developed nation.
- Most small and medium scale industry is struggling to adapt to modern technology.



- Entry level smartphones have limited capabilities for smooth internet access, and the outreach of the 'smartphones' is limited.
- There is an absence of enough skilled manpower in digital technology.
- Lack of user education and there are limited facilities to train personnel. India needs over one million cybersecurity experts to check and monitor the growing menace of digital crime.

Measures needed:

- There is a need for bridging the digital gap in rural areas.
- Websites and portals should be more compliant to standardization.
- Local language portals can be established to cater to the needs of diverse Indian population.
- External audits by NIC and increase of physical infrastructure to increase reach of internet services is necessary.
- Participative regulatory models will not only help us address emerging challenges in India's digital economy, but will also allow us to position ourselves as a technology-friendly jurisdiction.
- There should be an appetite for innovative structures such as regulatory sandboxes and a willingness to enhance regulatory capacity and measure performance

Conclusion:

India in the 21st Century must strive to meet the aspirations of its citizens where government and its services reach the doorsteps of citizens and contribute towards a long-lasting positive impact. The Digital India Programme aims to transform India into a digitally empowered society and knowledge economy by leveraging IT as a growth engine of new India.

What do you mean by shadow banking system? How does the crisis in the shadow banking industry affect the common man? Explain. (250 words)

Reference:

Why this question:

The question is based on the concept of Shadow banking and its effect on the common man.

Key demand of the question:

Discuss in detail the concept of shadow banking; explain the concerns associated and its impact on common man.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Define what shadow banking is – The shadow banking system is a term for the collection of non-bank financial intermediaries that provide services similar to traditional commercial banks but have different regulatory guidelines.

Body:

Briefly explain what is shadow banking system and its role.

Enumerate the challenges faced by it in India.

Suggest ways to address these challenges.

**Conclusion:**

Conclude that the challenges of shadow banking system have to be addressed at multiple levels.

Introduction:

Shadow banks are those institutions that do not collect deposits but still provide loans. These include a variety of institutions, ranging from trusts, investment funds etc. It facilitates the creation of credit but they are not subject to regulatory oversight. As a result, many of the institutions and instruments have been able to employ higher market, credit and liquidity risks, and do not have capital requirements commensurate with those risks. There are concerns that over lending and default in such institutions can destabilize the financial system.

Body:**Importance of Shadow banking:**

- in the context of the developing countries, the shadow banking sector plays an important role in promoting financial inclusion.
- They are very customer friendly, market oriented, innovative and flexible.
- The main advantages of shadow banks lie in their ability to reduce transaction costs, their quick decision making ability, and customer orientation and prompt delivery of services.
- Similarly, in India, the NBFC sector performs an exceptional role in providing credit in the rural areas. Hence, the sector is carefully regulated by the RBI in recent years.

Implications of Shadow banking:

- Shadow lending has played a major role in the build-up to the Great Financial Crisis in 2008.
- In India's case, shadow banking primarily consists of NBFCs and housing finance companies (HFCs).
- A 2017 report by the RBI said that 99.7% of shadow banking in India involves making long-term loans against short-term funding, primarily carried out by NBFCs and housing finance companies.
- Problems arise when such NBFCs become too big, invest in assets of dubious quality and are interconnected with other financial institutions, as demonstrated in the case of IL&FS.
- Additionally, NBFCs, owing to the nature of their business, are also more prone to risks from business cycles, excess leverage and over-reliance on wholesale funding.
- Concentration risks—too much exposure to some sectors—can also be a headache.
- In its recently released Global Financial Stability Report, the International Monetary Fund warned of systemic risks associated with such shadow banking practices which might spill over to banks.
- Such warnings are especially relevant for India as the size of its shadow banking sector appears to be on the higher side, when compared to many other large economies, as per the estimates by Basel, Switzerland-based Financial Stability Board (FSB).



- the recent IL&FS episode, the related lapse on the part of ratings agencies, and the looming threat of a liquidity squeeze across the NBFC sector have raised concerns of spillover, with exposure of banks and mutual funds to NBFCs rising in recent years.

Conclusion:

India also must end the regulatory arbitrage that allows shadow banks to raise most of their funds from retail investors and deposit-taking banks. Either shadow lenders should come out of the dark and be turned into banks, or a firewall will have to be erected around them to protect the rest of banking.

Discuss the need for greater collaboration between the government and the private sector for developing trade-smart schemes that can ensure long-term sustainability for the growth of Indian industry.(250 Words)

Financial Express

Why this question:

The recent WTO panel report highlights the fact that India needs a fresh debate on trade policy framework.

Key demand of the question:

One must analyse the need for greater collaboration between the government and the private sector for developing trade-smart schemes that can ensure long-term sustainability for the growth of Indian industry.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief trace the Recent global events that have had significant implications for reshaping India's trade policy framework.

Body:

First discuss in short the trade policy currently being practiced by the country.

Bring out the policies that the government in power has been trying to aim.

Emphasize on the fact that India's trade policy of the future ought to consider distinct approaches for trade in goods and trade in services.

Present case studies of successful collaborations of the government with private entities in the business scenario.

Conclusion:

Conclude that Greater collaboration between the government and the private sector, for developing trade-smart schemes and incentives that have long-term sustainability and contribution to the growth of Indian industry, is the only sensible way forward.

Introduction:

Recent global events have significant implications for reshaping India's trade policy framework. Supplementing this, the recent WTO panel report also highlighted the fact that India needs a fresh debate on trade policy framework.

Body:

Need for changes in the trade policy framework:



- In 2013-14 when India's per capita GNI (Gross National Income, earlier referred to as GNP or Gross National Product), assessed by the World Bank, breached the threshold of \$1,000.
- This development had a ripple effect in India's status as a 'developing country' under the WTO's Agreement on Subsidies and Countervailing Measures (ASCM), which regulates, among other aspects, export subsidies.
- In 2017, after three consecutive years of India's per capita GNI exceeding \$1,000, India graduated out of the list of 'developing countries' under Annex VII of the ASCM, which basically meant losing the space for foreign trade policy maneuverability that India had enjoyed till then as a developing country.
- A dispute challenging India's export subsidy schemes that was initiated by the US at the WTO in March 2018.
- The initial consultative phase did not lead to any resolution, and therefore the US sought the establishment of a panel for dispute settlement at the WTO in May 2018.
- At the core of the dispute was the contention that 'export incentives' granted by India under the DFIS, EOU, EPCG, MEIS and SEZ schemes are 'export subsidies' that are prohibited under the ASCM.
- The WTO dispute panel recommended that India should withdraw these schemes in a time-bound manner.

Steps undertaken by the Government so far:

- The government has also announced December 31, 2019, as the sunset date for the MEIS (Merchandise Exports from India Scheme).
- There is also anticipation of the launch of a new scheme, the RoDTEP (Remission of Duties or Taxes on Export Products).
- Another significant initiative by the Indian government was the setting up of a group consisting of SEZ stakeholders under the chairmanship of Baba Kalyani, which has made significant recommendations for SEZ reforms that the government is considering.

Measures needed:

- There is a need for emphasis that Indian industry should reduce its reliance on export incentives.
- India has to reinvent itself by increasing its competitiveness in the global market based on increased productivity of resources, improved quality, better efficiency and increasing reliance on data-driven business strategies.
- India's trade policy of the future ought to consider distinct approaches for trade in goods and trade in services
- The distinction between goods and services will also enable designing separate incentives and subsidies for services exports, which neither the WTO nor India's FTAs currently regulate.
- a meaningful trade policy framework needs to be rooted in an evidence-based approach, and rely on microeconomic data from the industry to enable targeted decision-making based on trade data analytics.



- Indian industry will also need to be proactive and establish appropriate mechanisms to capture data at the granular level, through innovative changes in accounting systems, IT systems and MIS, as well as ensure auditable record-keeping of the information required to benefit.
- the trade policy of the future will have to forego its three-decade old preoccupation with export obligations and foreign exchange earnings. The shift from **export growth to broad-based employment and economic growth** was highlighted in the Baba Kalyani report as well.
- Large industry houses, especially, will need to be better equipped with research and appropriate skill-sets, and apportion resources to be able to compliment and supplement government efforts.

Conclusion:

Indian industry should reduce its reliance on export incentives and has to reinvent itself by increasing its competitiveness in the global market based on increased productivity of resources, improved quality, better efficiency and increasing reliance on data-driven business strategies. Greater collaboration between the government and the private sector, for developing trade-smart schemes and incentives that have long-term sustainability and contribution to the growth of Indian industry, is the only sensible way forward.

Inclusive growth and issues arising from it.

“It is important not only to know how to counter the economic stagnation but also how not to counter it”. Deliberate upon the statement in the context of rapidly increasing fiscal deficit of Centre and states in the country. (250 words)

The Hindu

Why this question:

The Centre and the States are so short of resources that their fiscal deficit is burgeoning. The Prime Minister, at a function of the Associated Chambers of Commerce and Industry of India recently, was optimistic but the Reserve Bank of India (RBI) Governor was less positive, admitting that the country's economic problems are also structural. Thus the question.

Key demand of the question:

Discuss the current economic conditions of the country. Explain in detail the causes and concerns of the fiscal deficit of the states and the country. Suggest methods and measures to overcome it.

Directive:

Deliberate – Weigh up to what extent something is true. Persuade the reader of your argument by citing relevant research but also remember to point out any flaws and counter-arguments as well. Conclude by stating clearly how far you agree with the original proposition.

Structure of the answer:

Introduction:

Explain what economic stagnation is.

Body:

Give a brief introduction about the increase of Centre and state's fiscal deficit in the recent times.

Explain the recent steps to contain the situation.

Give the defects in taking such steps.

Suggest requires ways to be taken in this regard.

Give a futuristic way forward for the same.

Conclusion:

Conclude with solutions and way forward.



Introduction:

A **fiscal deficit** occurs when a government's total expenditures exceed the revenue that it generates, excluding money from borrowings. The difference between total revenue and total expenditure of the government is termed as fiscal deficit. It is an indication of the total borrowings needed by the government. Generally fiscal deficit takes place either due to revenue deficit or a major hike in capital expenditure. The Centre and the States are so short of resources that their fiscal deficit is burgeoning. The fiscal deficit at all levels of government is already high so a policy decision is needed on how much more it can be.

Body:

Fiscal Deficit of Centre:

- The government calculated tax revenues on the assumption of a 12% nominal growth. But, it has been around 9%, both last and this year. So, in 2018-19, tax revenue was short by about ₹1.5 lakh crore.
- Given that the base for calculating tax revenue this year was wrong and the rate of growth is incorrect, the revenue shortfall for the Centre will be even larger than last year — around ₹2 lakh crore

Increasing fiscal deficit of states:

- The States get 42% of this revenue so they will get ₹84,000 crore less.
- Further, the concessions in corporate taxation of ₹1.45 lakh crore will also mean ₹58,000 crore less revenue for the States.
- While the Centre has obtained ₹1.76 lakh crore from the RBI's reserves, no such succour is available to the States.
- The Centre will also get the proceeds of disinvestment but that is not shared with the States.
- In brief, the States will have a larger shortfall in resources than the Centre.
- The States have also been complaining that they are not getting the funds that are due to them from the Centre.
- The Centre has partly responded to this by transferring more, but that raises its deficit.
- One of the big contributors to GST has been the auto sector, but with sales falling over the last 10 months collections have declined.
- The Centre is apparently holding back the States' share of IGST and arguing that the cess collection is inadequate to compensate the States for their shortfall.

However, Economic stagnation cannot be countered by the following:

- Income-tax rates cannot be raised now since that would be seen as inequitable — rich corporates will pay a lower tax rate than the middle classes, who pay income-tax.
- There is pressure to reduce income-tax rates to boost demand in the economy.
- But a cut in income-tax rates will largely benefit less than 2% of the citizens who pay a significant amount of income-tax.
- They are well-to-do and unlikely to increase consumption.



- Similarly, the cut in corporate tax rates will not boost demand since neither investment nor consumption will rise.

Challenges posed by Fiscal Deficit:

- It can mean that the Government is spending money on unproductive programmes which do not increase economic productivity. (For example MNREGA, most of the money is eaten midway by the Sarpanch and Local officers.)
- As government borrows from RBI which meets this demand by printing of more currency notes (called deficit financing), it results in circulation of more money. This may cause **inflationary pressure in the economy**.
- When Government keeps borrowing and borrowing to fill up the fiscal deficit pothole, then bond yield will increase. It is not good because more and more of taxpayers' money (i.e. Government's incoming money) will go in repaying that bond interest rate rather than going into education or healthcare.
- State finances become important because of state governments increased reliance on market borrowings.
- The widening of state fiscal deficit now has more direct implications for interest rates in the economy.
- Fiscal deficits may cause macroeconomic instability by inflating the economy as money supply rises.
- Government may be compelled to borrow to finance even interest payment leading to emergence of a **vicious circle and debt trap**.
- Fiscal deficit "Crowds out" investment from private sector as Government borrows most of the cash.
- Borrowing is in fact financial burden on future generation to pay loan and interest amount which retards growth of economy.
- Large deficits even if they do not spill over into macroeconomic instability in the short run will require higher taxes in the long term to cover the heavy burden of internal debt.

Strategies to Reduce Fiscal Deficit:

- There is a need to implement **NK Singh committee recommendations** with respect to Fiscal deficit for a stable economy.
 - Suggested a fiscal deviation band of 0.5%.
 - This means that the government can deviate by 0.5% from the fiscal Deficit target if the economy is in slowdown.
 - The flexibility has been allowed for the government to create space for stimulus to pump-prime the economy.
- On the other hand, when the economy is doing well, the deficit can be compressed by 0.5%.
- A deficit is usually financed through borrowing from either the central bank of the country or raising money from capital markets by issuing different instruments like treasury bills and bonds.
- A drastic reduction in expenditure on major subsidies. Reduction in expenditure on bonus, LTC, leaves encashment, etc. Austerity steps to curtail non-plan expenditure.
- Tax base should be broadened and concessions and reduction in taxes should be curtailed. Tax evasion should be effectively checked. More emphasis on direct taxes to increase revenue. Restructuring and sale of shares in public sector units.



- Famous economist John Maynard Keynes opined that deficits actually assist nations in climbing out of economic recessions.
- However, fiscal conservatives believe that deficits should be avoided by the government which should be inclined towards a balanced budget policy.

Inclusive growth is expected to reduce poverty faster in the sense that it has to have a higher elasticity of poverty reduction. Do you agree? Analyse. (250 words)

Indian economy by Dutta and Sundaram.

Why this question:

The question is based on the Inclusive growth and its relations to Poverty reduction.

Key demand of the question:

Discuss the importance of inclusive growth and its relations with Poverty reduction and in what way it has links with higher elasticity of poverty reduction.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Discuss what inclusive growth is.

Body:

Highlight the features of inclusive growth. The growth is inclusive growth when it is socially inclusive, regionally balanced, which enables every state to do better than in the past, which narrows the gap between different communities, which also brings in our concern for gender equality, upliftment of women, improving their educational condition and social status.

Discuss its relations with higher elasticity of poverty reduction.

Conclusion:

Conclude with detailed analysis and its effects and significance.

Introduction:

The concept of **inclusive growth focuses on equitable growth for all sections of society**. This involves ensuring that fruits of growth and development reach the poor and marginalized sections as well. Inclusiveness is a multi-dimensional concept. Inequalities that include, social exclusion, discrimination, restrictions on migration, constraints on human development, lack of access to finance and insurance, corruption – are sources of inequality and limit the prospect for economic advancement among certain segments of the population, thereby perpetuating poverty.

Body:



Inclusive Growth leads to Poverty Reduction:

- Growth elasticity of poverty (GEP) is the percentage reduction in poverty rates associated with a percentage change in mean (per capita) income.
- Countries with a more equal distribution of income experience a greater reduction in the poverty rate for a given increase in per capita income.
- Economic growth has to be inclusive to ensure the wellbeing of the entire population. Inclusive growth requires full respect for human rights.
- Rapid and sustained poverty reduction requires inclusive growth that permits people to contribute to and benefit from economic growth.
- The main instrument for a sustainable and inclusive growth is assumed to be productive employment.
- Employment growth generates new jobs and income for the individual - from wages in all types of firms, or from self-employment, usually in micro firms - while productivity growth has the potential to lift the wages of those employed and the returns to the self-employed.
- The ability of individuals to be productively employed depends on the opportunities to make full use of available resources as the economy evolves over time.
- Inclusive growth generates decent jobs, gives opportunities for all segments of society, especially the most disadvantaged, and distributes the gains from prosperity more equally.
- Inclusive Growth lessens the fast growth rate of poverty in a country and upsurges the participation of people into the development of the country.

Measures needed:

- Lowering the incidence of poverty and inequality requires a comprehensive strategy.
- Important steps need to be taken like framing policies to improve health, nutrition and education.



- Labour market reforms and reforms of direct taxation will have redistributive effects on the system.
- Schemes like National Rural Employment Guarantee Scheme (NREGS), provide 100 days or more of employment at a wage determined by government are already in progress but there is a need to check the cost effectiveness of these schemes
- Reforms to plug the leakages in the PDS, introduction of GPS tracking, activating vigilance committees, must be undertaken across the country.
- Research needs to be carried out by government agencies to document the 'best practices' in the implementation of government schemes.
- Minorities and other excluded groups, including the poor in upper castes, also need special programmes to bring them into the mainstream.

Conclusion:

To achieve inclusiveness, all these dimensions need to be looked into. Institutional and attitudinal changes should be brought about though this will take time. Awareness about inclusiveness and empowerment is required to be created. Reducing poverty is to be taken as key element in our inclusive growth strategy and there has been some progress in that regard.

Issues related to direct and indirect farm subsidies and minimum support prices; Public Distribution System- objectives, functioning, limitations, revamping; issues of buffer stocks and food security; Technology missions; economics of animal-rearing.

The government, which aims to double farmers' incomes, cannot possibly allow the passage of the seeds bill 2019 that strikes at the very roots of farmer survival. Examine.

The Hindu

Hindustan Times

Why this question:

There is a draft seeds bill awaiting Parliament, which seeks to replace the old Seed Act of 1966. A law regulating seed production and trade is needed to ensure that farmers are protected against spurious seeds, and that seed producers are obliged to put only seeds of good and reliable quality on the market.

Directive word

examine – When asked to 'Examine', we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer

Introduction

One can start off with explaining about the Parliament's plan to introduce the new Seeds bill 2019 and how the previous two versions had created a lot of heated debates.

Body

Highlight the objectives and provisions of the New seeds bill 2019

Discuss the rationale behind the new Seeds bill 2019.

Discuss the challenges posed by the bill.

the Seeds Bill insists on compulsory registration of seeds. However, the PPVFR Act was based on voluntary registration. As a result, many seeds may be registered under the Seeds Bill but may not under the PPVFR Act.



as per the PPVFR Act, all applications for registrations should contain the complete passport data of the parental lines from which the seed variety was derived, including contributions made by farmers. This allows for an easier identification of beneficiaries and simpler benefit-sharing processes. Seeds Bill, on the other hand, demands no such information while registering a new variety.

And so on.

Provide measures to tackle the challenges posed.

Conclusion

Give a fair and balanced conclusion and discuss the way forward.

Introduction:

The **revised draft Seeds Bill 2019**, which the Ministry of Agriculture and Farmers' Welfare placed in the public domain recently for suggestions and comments, seems to be a watered-down version of a draft prepared. The Bill is aimed at **ensuring supply of modern, high quality, cutting edge seed technologies to the farmers** which will help them in enhancing their productivity and profitability. The Bill amends the Seed Act 1966 and Seed Rules 1968. It is evident that the seed industry has been at the center of the significant advances made in agriculture in the last four decades and will continue to do in the years to come.

Body:

Background:

- After the 'Green Revolution', India was quick to introduce the Seed Act 1966 as the first act to govern matters of seed and seed quality.
- It was modelled on the US legislation and aided by a later enactment of the Seed Rules 1968, which were also developed with the collaboration of the US.
- The seed industry in India has been governed by several legislative & policy frameworks such as Seed Act (1966), Seed Rules (1968), Seed (Control) Order (1983), New Policy on Seed Development (1988), Plants, Fruits & Seeds (Regulation of Import into India) Order (1989), Protection of Plant Varieties and Farmers' Right Act (2001), and the Essential Commodities Act, 1955 including Seeds (1955), National Seed Policy (2002), and Seed Bill (2004).
- The Seed Bill (2004) was proposed to replace the Seed Act (1966), however, owing to several shortcomings it was not passed. The 2019 draft version tries to overcome the drawbacks of the 2004 Bill.

Highlights of New seeds bill:

- It is an important legislation to **ensure the supply of modern, high quality, cutting edge seed technologies** to the farmers which will help them in **enhancing their productivity and profitability**.
- All varieties of **seeds for sale have to be registered** and are required to meet certain prescribed minimum standards. For instance, for transgenic varieties of seeds, registration is to be obtained under the Environment (Protection) Act, 1986. This can bring greater accountability to seed companies.
- Exempt farmers from obtaining registration for varieties developed by them. However, if the farmer sells such seeds for a monetary consideration, then that sale needs to be registered. This is to protect the interests of other farmers who buy seeds from such a farmer.



- Farmers are allowed to sow, exchange or sell their farm seeds and planting material without having to conform to the prescribed minimum limits of germination, physical purity and genetic purity (as required by registered seeds). However, farmers cannot sell any seed under a brand name.
- In the proposed Bill, there is a differentiation between the seed producer, seed processor and seed dealer for the purpose of licensing. However, there is no recognition of National Level Integrated Seed Companies with R&D capabilities.
- Currently, a large percentage of seed is sold under a self-certification programme called Truthfully Labelled (TL) seeds. The certification process has been kept voluntary.
- The bill empowers the government to fix prices of selected varieties in case of 'emergent' situations such as seed.
- The bill differentiates the agronomic performance of the seed, its physical quality and the supply of spurious seed, and consequently penalizes the offences and prescribes punishment.

Concerns or challenges posed:

- The Seeds Bill **insists on compulsory registration of seeds**. However, the PPVFR Act was based on voluntary registration. As a result, many seeds may be registered under the Seeds Bill but may not be under the PPVFR Act.
- If a seed variety could have been developed by a breeder, but derived from a traditional variety. In this case, the breeder will get exclusive marketing rights. But no gain will accrue to farmers as benefit-sharing is dealt with in the PPVFR Act, under which the seed is not registered.
- private seed companies can re-register their seeds. They can do this for an infinite number of times after the validity period. Given this "ever-greening" provision, many seed varieties may never enter the open domain for free-use.
- The provision for regulation of seed prices is vague in the bill. Farmers' have also demanded an official body to regulate seed prices and royalties. In its absence, they feel, seed companies may be able to fix seed prices as they deem fit, leading to sharp rises in costs of cultivation.
- According to the bill, the disputes on compensation have to be decided as per the Consumer Protection Act 1986. Consumer courts are hardly ideal and friendly institutions that farmers can approach.
- According to the Seeds Bill, farmers become eligible for compensation if a plant variety fails to give expected results under "given conditions". However, "given conditions" is almost impossible to define in agriculture.

Way forward:

- Quality seeds are India's lifeline. Farming, food and the livelihood of over 60 per cent of the Indian population depend on them.
- A failed harvest has the potential to curtail our GDP and force millions of Indians into poverty and hunger until the next harvest. Overall, India depends on seeds to sustain life.



- The present government has a chance to seed a unique and progressive Seed Bill or plagiarize from others.
- We are sure our government will not let us down in their decision, and ensure their seed bill will give plentiful harvests for Indian farmers and industry.
- Ultimately, the quality seed will be available to the farmers at competitive prices subject to a vibrant growth of the seed industry in an enabling environment.
- Healthy seed industry will lead to enhanced quality seed availability at affordable prices to the farmers.

Effects of liberalization on the economy, changes in industrial policy and their effects on industrial growth.

Embracing the new dogma of globalization without a cost-benefit analysis is equally dangerous, examine in the backdrop of India not joining the Regional Comprehensive Economic Partnership (RCEP). (250 Words).

The Hindu

Why this question:

The question is in the backdrop of India not joining the Regional Comprehensive Economic Partnership (RCEP).

Key demand of the question:

One must examine the relevance of globalisation and the limitations it comes with.

Directive:

Examine – When asked to ‘Examine’, we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

In short explain the concept of globalisation, trace the history of its coming.

Body:

Explain what has been the issue with RCEP and India.

Discuss the pros and cons of globalisation.

Explain the effects of trade with China and its implications on Indian economy.

Highlight that India needs to take a hard look at its choices. Creating global competitiveness and doing all that it takes to do so, including abandoning conventional ways of thinking, cannot be delayed. Better-functioning factor markets and reducing costs for businesses are overdue.

Conclusion:

Conclude that Smarter, creative policies for developing and nurturing the nation’s industrial and technological capacities need to be crafted. Economic nationalism and greater ambition is the need of the hour.

Introduction:

Prime Minister recently announced that India would not sign on to the Regional Comprehensive Economic Partnership (RCEP) agreement. The agreement, which is dubbed as the world’s biggest trade agreement, is expected to proceed with the 15 other members of the agreement, including



Australia, China, Japan, New Zealand, South Korea, and the 10 member states of the Association of Southeast Asian Nations (ASEAN).

Body:

In defending **India's withdrawal from the RCEP**, the government has articulated **three key concerns**:

- The first is the negative impact of joining the agreement in key constituencies in India, particularly farmers and small business owners.
- The second is the lack of concessions within the final agreement on key demands for India such as work visas and liberalisation in services.
- The final is regarding India's trade deficit, and how those deficits would expand under the RCEP, given that India currently runs deficits with 11 of the 15 other member states.
- This concern is particularly acute when it relates to China, with India fearing an influx of cheap Chinese imports into India.
- These concerns, particularly on the fears of Chinese imports and its impact on Indian domestic manufacturers, are legitimate and well-founded.

However, the answer to these concerns is not India's withdrawal from the agreement.

- India's absence in both of **Asia's two key economic architectures (the RCEP and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP))** will take away from India's goals as a regional and Indo-Pacific power, as well as a prospective global power.
- Given **India's own ambitions to generate growth and jobs** through spurring manufacturing within India, and becoming a key player and rule-maker on the world stage, India's decision to withdraw from the RCEP is not ideal.
- As academician James Crabtree has noted: "India had already won concessions, including implementation delays stretching into decades and safeguards to protect sensitive sectors like agriculture."
- Moreover, as Arvind Panagariya, former Vice Chairman of NITI Aayog, stated that existing WTO rules "allow us to impose safeguard duties and anti-dumping," which India has used and can continue to use against China when it comes to unfair trade practices.
- Value Chain Integration with Global Markets will yield Sustained Economic Growth.
- Returning to India's articulation of its national interest, this delay in integrating with global value chains will impact India's internal and external ambitions.
- The World Bank found that when coupled with domestic reforms, joining such global value chains can "boost growth, create better jobs, and reduce poverty".
- India's own evidence shows that jobs linked to global value chains earn one-third more than those jobs focused on the domestic market.
- The inability to accede to the RCEP and ensure India's integration into these emerging global value chains means India will lose out on a key opportunity to create such high-quality, high-paying jobs.



Conclusion:

India's decision to withdraw at this stage, particularly in light of India's own articulation of its national interest and its ambitions internally and on the world stage, reflects an inability to translate ambitions into action.

Way Forward:

- The government must focus on the mechanisms through which India can create globally competitive sectors that can demand market access in India's partner countries.
- India will have to accelerate reforms to make exports more competitive.
- Making available round-the-clock good quality electricity, cheap and efficient logistics, and access to cheaper and quality capital.

Science and Technology- developments and their applications and effects in everyday life; Achievements of Indians in science & technology; indigenization of technology and developing new technology.

The Supreme Court has asked government to look into the feasibility of hydrogen-based tech to deal with vehicular air pollution in capital. In light of the above statement, Discuss the hydrogen fuel cells technology and its applications. Also evaluate India's preparedness to adopt it. (250 words)

Indian Express

Why this question:

Supreme Court has asked government to look into the feasibility of hydrogen-based tech to deal with vehicular air pollution in capital. India is looking closely at Japan, which has made progress in this field. The article provides deep insight into hydrogen fuel cell technology which are going to become the preferred mode of transportation in the days and years to come.

Key demand of the question :

The question expects us to explain how hydrogen fuel cells battery work. Thereafter, we need to highlight the pros and cons of technology, its possible applications. Further we need to analyse India's steps to accept and adopt the technology to combat the pollution issues. And finally give a fair and balanced view regarding the future of these technologies.

Directive word

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer

Introduction:

Explain that electric vehicles are the way forward because of threats of climate change

Body:

Explain how hydrogen fuel cell batteries work

At the heart of the fuel cell electric vehicles (FCEV) is a device that uses a source of fuel, such as hydrogen, and an oxidant to create electricity by an electrochemical process. Put simply, the fuel cell combines hydrogen and oxygen to generate an electric current, water being the only by-product. Like conventional batteries under the bonnets of automobiles, hydrogen fuel cells to convert chemical energy into electrical energy. From a long-term viability perspective, FCEVs are billed as vehicles of the future, given that hydrogen is the most abundant resource in the universe.

Discuss the pros and cons of HFC technology



Discuss the various applications of the technology.

Finally, talk about how far is India ready to adopt the FCEV technology.

Conclusion:

Give your opinion on which technology is the future and what should India do.

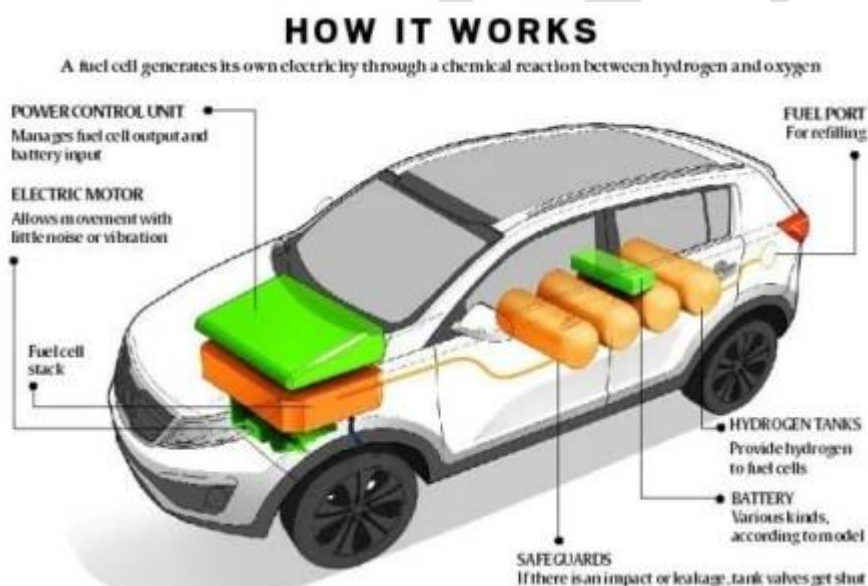
Introduction:

Fuel cell electric vehicles (FCEV) is a device that uses a source of fuel, such as hydrogen, and an oxidant to create electricity by an electrochemical process. Put simply, the fuel cell combines hydrogen and oxygen to generate an electric current, water being the only by-product. Supreme Court has asked government to look into the feasibility of hydrogen-based tech to deal with vehicular air pollution in capital. India is looking closely at Japan, which has made progress in this field.

Body:

Hydrogen-Fuel Cells:

- Fuel cells are **electrochemical devices** that convert chemical energy in fuels into electrical energy directly.
- A fuel cell produces electricity, water, and heat using fuel and oxygen in the air.
- An electrochemical reaction between hydrogen and oxygen, catalysed by platinum, to produce energy.
- Water is the only emission when hydrogen is the fuel.



Advantages:

- A fuel cell operating on pure hydrogen emits zero emissions at the source.
- Fuel cells provide a much longer operating life than a battery, and since fuel cells have a higher energy density, they are lighter than an equivalent battery system.
- Fuel cells create energy electrochemically, and do not burn fuel, they are fundamentally more efficient than combustion systems.



- They do not require recharging and is a renewable source of energy.
- Hydrogen can be produced from domestic resources, eliminating the need to import foreign oil. It gives energy security.
- Fuel cells are modular, and can be scaled up depending on the power needs of a facility. Larger fuel cells can be linked together to achieve multi-megawatt outputs

Challenges:

- While widely available, hydrogen is expensive. it takes a lot of time to separate the hydrogen element from others.
- The transport and storage of hydrogen is deemed impractical.
- Since it is a very powerful source of fuel, hydrogen can be **highly inflammable**.
- Other non-renewable sources such as coal, oil and natural gas are needed to separate hydrogen from oxygen. As a result, carbon dioxide is also emitted in the air and makes global warming worse.

Global scenario:

- China, far and away the world's biggest auto market with some 28 million vehicles sold annually, is aiming for more than 1 million hydrogen fuel cell vehicles (FCVs) in service by 2030. That compares with just 1,500 or so now, most of which are buses.
- Japan, a market of more than 5 million vehicles annually, wants to have 800,000 FCVs sold by that time from around 3,400 currently.
- South Korea, which has a car market just one third the size of Japan, has set a target of 850,000 vehicles on the road by 2030. But as of end-2018, fewer than 900 have been sold.

Progress in India:

- In India, so far, the definition of EV only covers BEVs; the government has lowered taxes to 12%.
- At 43%, hybrid electric vehicles and hydrogen FCEVs attract the same tax as IC vehicles.
- The Ministry of New and Renewable Energy, under its Research, Development and Demonstration (RD&D) programme, has been supporting various such projects in academic institutions, research and development organisations and industry for development.
- Fourteen RD&D projects on hydrogen and fuel cells are currently under implementation with the support of the Ministry. Between 2016-17 and 2018-19, eight projects were sanctioned and 18 completed.
- The Ministry of Science and Technology has supported two networked centres on hydrogen storage led by IIT Bombay and Nonferrous Materials Technology Development Centre, Hyderabad. These involve 10 institutions, including IITs, and IISc, Bangalore.

Conclusion:



The **FAME India** is a part of the **National Electric Mobility Mission Plan** whose main thrust is to **encourage electric vehicles by providing subsidies**. India must however make a concerted attempt to incentivize both EVs and FCEVs.

India needs to formally come up with its national strategy on synthetic biology — both policy and regulatory. Discuss. (250 words)

The Hindu Business line

Why this question:

India established the Department of Biotechnology during the late 1980s to harness the emerging science to the benefit of the country. However, there has been a long-standing lack of clarity and consensus among scientists, policymakers, industry, farmers and civil society organisations on how India needs to deal with synthetic biological methods like the genetic modification technology in areas like agriculture.

Key demand of the question

The question expects us to explain the concept of Synthetic biology. Thereafter, we need to highlight the pros and cons of technology, its possible applications. Further we need to analyse India's need to come up with a policy to regulate the affairs in synthetic biology. And finally give a fair and balanced view regarding the kind of policy needed.

Directive word

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer

Introduction

Explain the term Synthetic biology and need to come up with a policy on the same in India. Synthetic biology is a field of science that involves redesigning organisms for useful purposes by engineering them to have new abilities. This technology, of developing new life forms, is being pursued by industry despite there being no regulatory framework in place

Body

Explain the concept in detail.

Discuss the various applications of the technology. genetic modification technology in areas like agriculture

Cloning technologies

In less than nine years, synthetic biology has caught the imagination of scientists and the industry's market of \$11 billion in 2016 is expected to grow to \$100 billion by 2025.

Discuss the pros and cons of Synthetic biology.

Finally, talk about need for India to come up with a policy on synthetic biology.

The lack of policy is a cause of serious concern after decades of work in this area compromising research, investments and decision-making.

In the absence of India undertaking a proactive approach to this technology, there is ample chance that we will end up having the same, if not more, contentious debates about synthetic biology organisms and products as those on genetically modified organisms.

Conclusion

Give your opinion on what kind of policy should India come up with respect to synthetic biology.

Introduction:

Synthetic biology is a field of science that involves redesigning organisms for useful purposes by engineering them to have new abilities. Synthetic biology combines chemical synthesis of DNA with growing knowledge of genomics to enable researchers to quickly manufacture catalogued DNA sequences and assemble them into new genomes. Synthetic biology researchers and companies around the world are harnessing the power of nature to solve problems in medicine, manufacturing



and agriculture. This technology, of developing new life forms, is being pursued by industry despite there being no regulatory framework in place.

Body:

Some examples of what scientists are producing with synthetic biology are:

- **Microorganisms harnessed for bioremediation** to clean pollutants from our water, soil and air.
- **Rice modified to produce beta-carotene**, a nutrient usually associated with carrots, that **prevents vitamin A deficiency**. Vitamin A deficiency causes blindness in 250,000 – 500,000 children every year and greatly increases a child's risk of death from infectious diseases.
- **Yeast engineered to produce rose oil** as an eco-friendly and sustainable substitute for real roses that perfumers use to make luxury scents.
- **Biosensors**: an engineered organism that is capable of reporting some ambient phenomenon such as the presence of heavy metals or toxins.
- **Cell transformation**: Cell transformation is used to create biological circuits, which can be manipulated to yield desired outputs. i.e., make antimalarial drug by modifying yeast molecules.
- **Space exploration**: Synthetic biology could help to produce resources for astronauts from a restricted compounds sent from Earth.
- **Access to food**: Synthetic biology was viewed initially by the public as a tool to tackle food scarcity. But concerns exist that large corporations could patent developments, create monopolies and leave developing countries dependent on the West.

Need to come up with national strategy on Synthetic biology:

- India established the Department of Biotechnology in 1986 to harness the emerging science to the benefit of the country. However, there has been **a long-standing lack of clarity and consensus** on how India needs to deal with genetic modification technology in areas like agriculture.
- **Potential of synthetic biology:**
 - It was the Craig Venter Institute, US, that created the first artificial life form and called it 'Synthia' in 2010.
 - In less than nine years, synthetic biology has caught the imagination of scientists and the industry's market of \$11 billion in 2016 is expected to grow to \$100 billion by 2025.
- The scope of technology foresight comprises not only technologies and their applications but also public policies and societal challenges.
- **Involvement of Private sector:**
 - It is surprising to note the number of interventions the private sector is undertaking to focus on product development using synthetic biology in India.



- Currently, there is no consolidated information on who does what, how, for how much, and when the technology will be commercialised with what policy prescriptions.
- Global policy-making favours treating synthetic biology products and organisms on similar lines as living (read genetically) modified organisms.
- There is ample chance that we will end up having the same, if not more, contentious debates about synthetic biology organisms and products as those on genetically modified organisms.
- Projects that propose to synthesize entire genomes **raise important ethical questions** about potential harms and benefits to society.

Way forward:

India's policy and regulatory framework needs to focus on the following:

- defining what constitutes the science of synthetic biology;
- what kinds of research and development priorities will be made for public sector;
- guidance for private sector in synthetic biology research in the future that considers all relevant policy frameworks, including those in intellectual property rights;
- how India will regulate the development and use of this technology, considering issues related to environment and socio-economics.



Awareness in the fields of IT, Space, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.

Explain how Big data can play a significant role in enhancing our capabilities to manage disasters. (250 Words).

HAL Archives

Why this question:

The question is pertaining to the role of Big data in managing disasters.

Key demand of the question:

The question wants us to write at length about the role big data technologies can play in disaster management. What are the areas of application and hurdles if any involved.

Directive:

***Explain** – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.*

Structure of the answer:

Introduction:

write a few lines about the increased incidences of disasters, their relevance for all the nations etc. Also mention that technologies like Big data, AI etc. can play a huge role in helping us manage the disasters in a better way.

Body:

Define disaster management- e.g. Disaster management is a systematic process with primary aim to reduce the negative consequences and effect of disasters, hence safeguarding people and social infrastructure.

Discuss in points, how big data can play a role in disaster management. E.g Big data generated from geo-informatics and remote sensing platforms can contribute to early warning systems for disasters. Geographical Information Systems (GIS), Global Positioning Systems (GPS) and environmental monitoring sensors with cloud services have a potential to predict disasters; Geoinformatics information along with transportation network data can benefit to understand human mobility patterns during disasters; social data sets; financial data sets etc.

Discuss the challenges involved in the process. E.g. Understanding how to link different datasets with different kinds of disasters, early phase of research and application of big data; protection of personal privacy and information etc.

Conclusion:

Conclude with way forward.

Introduction:

Disaster management is a systematic process with primary aim to reduce the negative consequences and effect of disasters, hence safeguarding people and social infrastructure. Effective management as well as monitoring of disasters is a global challenge.

As the number and access to different datasets is expanding rapidly, the potential and utility of big data is growing for disaster management. Big Data has already saved lives and proven effective within the emergency management field

Body:

Need for Big Data in Disaster Management:

- The storage and processing of large volumes of disaster data are the biggest challenges faced by civil defence, police, fire departments, public health and other government organizations.



- It is very crucial for these organizations to get processed real-time disaster data as quick as possible in order to react and coordinate efficiently.
- Big data tools and techniques can assist disaster management officials to optimize decision-making procedures.
- Effective planning and management hugely depends on the quality as well as quantity of the data available.
- Emergency personnel can minimize their search time and maximize their recovery time when they have access to real-time information

Role of Big Data in Disaster management:

- Empower decision-makers to make accurate assessment during a disaster.
- Big data generated from geo-informatics and remote sensing platforms can contribute to early warning systems for disasters.
- Integration of different data streams, along with data processing and storage is effective for disaster preparedness.
- Help in the development of effective strategies and contribute to minimize the potential effects of disasters.
- Significance of big data analytics to predict occurrences of the floods and for flood management.
- It will help for timely humanitarian response to different disasters.
- Using geospatial datasets along with big data paradigm can provide location based services to avoid hazardous situations.
- It will also benefit in the identification of regions which need the most urgent attention.
- Enhance disaster recovery by utilizing community information and connecting victims with emergency responders and family.
- Connecting Missing People with Their Families
- With big data, safety professionals can better prepare disaster simulations for more accurate implementations.
- Big Data opens up new career opportunities for those who want to find innovative ways to help others.

Limitations:

- Understanding how to link different datasets with different kinds of disasters.
- The potential of big data technology has not been fully explored for disaster management.
- Not all big data is public and freely available.
- Network security threats and vulnerabilities.
- Challenges related to protection of personal information and privacy.

**Way Forward:**

- Integration of datasets along with providing access to information to agencies managing disasters is crucial to enable effective decision making.
- It's important to protect individuals' identifications and efforts should be put to anonymize the collected datasets.
- Leverage techniques from artificial intelligence (AI) and machine learning (ML) to understand, correlate and draw findings from the disaster related data.
- Analysis from processed disasters information can help to identify the most effective strategies to respond future disasters.
- Ensure data consistency, accuracy and completeness for decision making processes.
- Need to investigate data mining challenges as well for disaster management.
- Security as well as privacy issues in data transmission and storage also need to be under constant investigation.

One of the parameters of assessing societal development of a country is the extent to which there has been penetration of information and communications technology (ICT); in this regard explain what do you understand by digital divide? What are its implications? Suggest measures to overcome it. (250 words)

The Hindu

Why this question:

The government on Tuesday announced a new 'mission' aimed at providing broadband access in all villages in the country by 2022, entailing investments of around ₹7 lakh crore from various stakeholders.

Key demand of the question:

One must discuss the concept of digital divide; bring out the issues involved in the Indian scenario and suggest way forward.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:**Introduction:**

Define what digital divide is; A digital divide is an economic and social inequality with regard to access to, use of, or impact of information and communication technologies (ICT).

Body:

Start with the significance of penetration of information and communications technology (ICT). Discuss the impact of it on the society.

Explain that Government of India has been pursuing e-governance initiatives to bring in transparency accountability, speed in delivery of public services. Digital divide has been the major hindrance in path of these e-governance initiatives.

Provide for suggestions.

Conclusion:

Conclude with way forward.

Introduction:



Digital divide refers to the **gap between demographics and regions** that have access to modern information and communications technology, and those that don't or have restricted access. It is an **economic and social inequality** with regard to access to, use of, or impact of information and communication technologies (ICT).

To bridge this gap, the government recently announced **The National Broadband Mission**, which is aimed at providing broadband access in all villages in the country by 2022, entailing investments of around ₹7 lakh crore from various stakeholders.

Body:

Digital divide scenario in India:

- The report, titled Internet in India 2017, was released by the Internet and Mobile Association of India.
- In December 2017, internet penetration in urban India was at 64.84 percent as compared to 60.6 per cent in December 2016. In rural India, however, internet penetration was at 20.26 percent in December 2017, from 18 percent in 2016.
- According to a 2017 global survey by the Pew Research Centre, only one in four Indian adults report using Internet or owning a smartphone.
- despite the booming economy, India's progress in smartphone penetration has been slow.
- in India and Tanzania, less than one-quarter report owning smartphones, the lowest among the countries surveyed.
- A Deloitte India report released in January 2018 revealed that with only 17 percent internet penetration, rural India is lagging behind in connectivity owing to challenges in deployment of fixed broadband networks.

Implications of Digital divide:

- Increasing penetration of digital technology by bridging the existing digital divides is associated with greater social progress of a country.
- **Social capital:** Once an individual is connected, Internet connectivity and ICTs can enhance his or her future social and cultural capital.
- Economic disparity is created between those who can afford the technology and those who don't.
- A direct correlation between a company's access to technological advancements and its overall success in bolstering the economy.
- Countries with less digital gap are benefitted more than the ones with more digital gap.
- **Education:**
 - The digital divide also impacts children's ability to learn and grow in low-income school districts.
 - Without Internet access, students are unable to cultivate necessary tech skills in order to understand today's dynamic economy



- **Lack of information:**
 - Almost all India's socio-economic problems had links to the "digital divide", which had come to stay during the era of digital revolution and then again during the era of internet revolution in India.
 - Rural India suffered from information poverty. Information is controlled by a few at the top of the pyramid who restrict its percolation down to those at the bottom.
- Political empowerment and mobilisation in the age of social media is difficult when there is digital divide.
- **Transparency and accountability are increased** when digitalised for instance people filing taxes online, single window mechanisms for delivery of services ensures good governance as well.

Measures needed:

- To bridge the digital divide, there is a need to **accelerate execution**.
- **Meaningful collaborations with the private sector**, technological innovations and following a consistent focused approach towards the larger objective are necessary.
- Utilisation of multiple modes of transactions such as **Unstructured Supplementary Service Data (USSD), Unified Payment Interface (UPI), Immediate Payment Service (IMPS), and Point-of-Sale (POS) machines**, need to be strengthened
- India also needs easing of regulations to **allow inter-operability of wallets** to ensure easy transfer of funds for merchants as well as for consumers.
-
- A framework comprising both is needed:
 - A **positive obligation** to create infrastructure for a minimum standard and quality of Internet access as well as capacity-building measures which would allow all citizens to be digitally literate.
 - A **negative obligation** to protect citizen's right to privacy.
- The government should invest the resources saved by moving services online, to create Digital infrastructure.
- The definition of digital literacy today must include the ability to access and act upon resources and information found online.
- Internet access and digital literacy are dependent on each other, and creation of digital infrastructure must go hand in hand with the **creation of digital skills**.
- Apart from it, there is a need to **strengthen telecom regulations**, so as to ensure market competition and make the **internet affordable to all**.
- **Zero-rated services for mobile data access**, could be an intermediate step to fully open and affordable Internet access for the poorest, provided that the choice of selecting services is transparent and inclusive.



Extra information:

The National Broadband Mission

- The vision of the national broadband mission is to **fast-track growth of digital communications infrastructure, bridge the digital divide, facilitate digital empowerment and inclusion, and provide affordable and universal access of broadband for all.**
- It will facilitate universal and equitable access to broadband services across the country, especially in rural and remote areas.
- It will also aim at significantly improving quality of services for mobile and internet.
- Under the mission, the government plans to lay incremental 30 lakh route km of Optical Fiber Cable, while also increasing tower density from 0.42 to 1 tower per thousand of population by 2024.
- The mission envisages stakeholder investment of \$100 billion (₹7 lakh crore), including ₹70,000 crore from **Universal Service Obligation Fund (USOF)** in coming years.
- It tries to address policy and regulatory changes required to accelerate the expansion and creation of digital infrastructure and services.
- the Centre will work with States and UTs for having consistent policies pertaining to expansion of digital infrastructure including for **Right of Way (RoW) approvals** required for laying of optical fibre cable.
- **A Broadband Readiness Index** will be developed to measure the availability of digital communications infrastructure within a State/UT

India has achieved remarkable success in unmanned space missions till date; with Gaganyaan it has now ventured into manned space missions Discuss the significance of the Gaganyaan mission to India, what are the major challenges in the manned mission to space? Explain. (250 words)

The Hindu

Why this question:

The Indian Space Research Organization (ISRO) planning its first unmanned test mission of the Gaganyaan mission.

Key demand of the question:

Discuss the significance of the Gaganyaan mission to India and the challenges it has been facing in going ahead with an unmanned mission in space.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Discuss the background of the Mission Gaganyaan; Gaganyaan will be the first manned space mission of ISRO which is proposed to be launched by 2022.

Body:

Deliberate upon the manned and unmanned missions of the past in brief first. Explain what the mission Gaganyaan is.



Gaganyaan is an Indian crewed orbital spacecraft intended to be the basis of the Indian Human Spaceflight Programme.

Gaganyaan is expected to carry three people into space for seven days. The largely autonomous capsule will orbit the Earth in the low earth orbit of 300-400 Km.

The crewed vehicle is planned to be launched on ISRO's GSLV Mk III in December 2021. HAL has manufactured the crew module.

With this, India could potentially become the fourth country to send a man to space, after the erstwhile USSR, the US and China. Denmark also has a manned space flight scheduled for 2022.

Highlight the challenges faced.

Conclusion:

Conclude with way forward.

Introduction:

The Prime Minister of India in his Independence Day address announced that an Indian astronaut would go into space by 2022, when India celebrates her 75th year of Independence. In pursuance of this, Indian Space Research Organization (ISRO) plans to fly the first unmanned test mission ahead of its ambitious crewed Gaganyaan mission by the end of 2020, according to ISRO Chairman.

Body:

Mission Gaganyaan:

- India's first manned space flight Gaganyaan is expected to send three persons into the space for seven days and the spacecraft will be placed in a low earth orbit of 300-400 km.
- Two unmanned Gaganyaan missions will be undertaken prior to sending humans.
- The total programme is expected to be completed before 2022 with first unmanned flight within 30 months.
- The mission is estimated at 9000 crore.
- It would raise scientific and technological temper across the country and inspire youngsters.
- When it achieves the mission, India would be the fourth nation to circle Earth after the Soviets, the Americans and the Chinese.

Challenges:

- For a manned mission, the key distinguishing capabilities that ISRO has had to develop include the ability
 - to bring the spacecraft back to Earth after flight
 - to build a spacecraft in which astronauts can live in Earth-like conditions in space
- India is yet to perfect fool-proof launch vehicle technology, the basic requirement for a manned space mission.
- The Polar Satellite launch vehicle and the Geosynchronous Launch vehicle, the two Indian spacecraft deployed to launch satellites and modules into space, are yet to be man-rated.
- India does not even have the facilities to train astronauts.



- ISRO has not been able to put in place India's own Global Positioning System in spite of completing the NavIC due to dysfunctional atomic clocks in the satellites, rendering the fleet a dud.
- The launchpad at the Sriharikota spaceport, the Satish Dhawan Space Centre, will have to be enhanced for the human mission.
- While the launch vehicle, crew module, re-entry technology, crew escape system are in place, monitoring and tracking systems, Environmental Control & Life Support System (ELCSS), space suit and crew support systems are still in the developmental phase.

Way forward:

- It is important to ensure engagements at political level to obtain long term commitment for India's human space flight missions
- Financial implications of a long-term human space-flight programme development should be assessed and the returns and benefits should be clearly articulated
- It is important to overcome the technological challenges to ensure a safe, successful manned space mission. International collaboration in this domain can help India ensure a robust technology for its HSF programme.
- Selection of Indians for astronauts will be an important step. Procedures and specifications for astronauts and a rigorous selection process is suggested.

Conservation, environmental pollution and degradation, environmental impact assessment

The idea that 'green technology' can help save the environment is dangerous because it glosses over the alternatives' ills. Analyse.

The Wire

Why this question:

The world is grappling with the consequences of climate change and environmental degradation. A number of solutions have been posed and several of them are current being implemented. However it has been seen that many of those solutions while addressing one aspect create further problems for environment and our climate. It is therefore important to discuss those solutions and their effects.

Directive word:

Analyze-here we have to examine methodically the structure or nature of the topic by separating it into component parts, and present them as a whole in a summary.

Key demand of the question:

The question wants us to dig deep into the solutions being posed and implemented to address the issue of climate change and environmental degradation and how they in turn affect the environment in a negative way.

Structure of the answer

Introduction:

write a few introductory lines highlighting environmental degradation, biodiversity loss and climate change. E.g Industrialists around the world have been extracting a wide array of minerals and metals to build electric vehicles and 'cleaner' batteries, simply replacing one injustice with another. present some related statistics and mention that a number of solutions have been currently in vogue to address those issues.

Body:



In a bid to reduce the extraction of hydrocarbons for fuel as well as to manufacture components for more efficient electronic and mechanical systems, industrialists around the world have been extracting a wide array of minerals and metals, destroying entire ecosystems and displacing hundreds of thousands of people. It's as if one injustice has replaced another.

Discuss how the extraction of minerals for development of Green technology has been leading to environmental pollution, taking the cases of Guinea, Congo etc.

Discuss Biofuels as alternatives to fossil fuels and challenges posed by them.

Wind farms vs biodiversity loss and air pollution.

Challenges posed by recycling.

Conclusion:

Based on your discussion, form a fair and a balanced conclusion on the given issue

Introduction:

The climate change and environmental degradation has posed some grave threats to the environment. According to **UN Water**, some 1.1 billion people worldwide lack access to water, and a total of 2.7 billion find water scarce for at least one month of the year. The recent **IPCC's "Special Report on Global Warming of 1.5°C"** revealed that the impacts and costs of 1.5 degrees Celsius of global warming will be far greater than expected. The Intergovernmental Panel on Climate Change says a **1.5°C average rise may put 20-30% of species at risk of extinction**. If the **planet warms by more than 2°C, most ecosystems will struggle**. Coral reefs are projected to **decline by a further 70-90% at 1.5°C**.

Body:

In a bid to reduce the extraction of hydrocarbons for fuel as well as to manufacture components for more efficient electronic and mechanical systems, industrialists around the world have been extracting a wide array of minerals and metals, destroying entire ecosystems and displacing hundreds of thousands of people. It's as if one injustice has replaced another.

The salt flats 3,600 meters above sea-level in Bolivia and Chile hold nearly half of all the lithium in the world. Lithium is another important metal required to manufacture energy storage devices. (This year's Nobel Prize for chemistry was awarded to researchers who invented the lithium-ion battery.) But the rush to control Bolivia's resources quickly destabilised the local socialist government, which had intended to regulate mining and distribute profits among the population. The right-wing government in place now is likely to reopen negotiations with foreign mining companies that its predecessor had nixed.

- **Desalination technology:** Desalination has become a solution for many cities located in coastal areas. The saline water from the sea is treated and the water is made potable. More than 16,000 desalination plants are scattered across the globe producing fresh water, according to a **first global assessment of the sector's industrial waste**.
- **Challenges posed:** The plants produce more briny toxic sludge than fresh water. For every litre of fresh water extracted, a litre-and-a-half of salty, chemical-laden sludge called brine is dumped—in most cases—into the ocean. That's enough to cover the state of Florida in a 30-centimetre (one-foot) layer of slime.
- **Hydro Fluoro Carbons to protect ozone depletion:** The **1987 Montreal Protocol** banned industrial chemicals (CFCs) dissolving stratospheric ozone, which protects us from the Sun's



dangerous ultraviolet rays. To replace the forbidden molecules, used in aerosols and refrigerants, scientists invented a new category known as HFCs.

- **Challenges posed:** But there was a small problem that didn't emerge until much later: the substitutes—while harmless to the ozone layer—were **dangerous greenhouse gases**, thousands of times more potent than carbon dioxide or methane. That meant a new, protracted round of negotiations over an amendment calling for the phase of HFCs, which was finally adopted in 2016.
- **Bio-fuels:** The rise in oil prices in the 1970s, and later the looming threat of climate change, boosted the production of bio-fuels made from corn, sugarcane and palm oil. It seemed like a great idea: planet-warming CO₂ released into the atmosphere when the bio-fuels were burned would be partially offset by the CO₂ absorbed while the plants were growing.
- **Challenges posed:** The energy needed to transform and transport plant-based fuels undercuts their original purpose. To make matters worse, the newly emerging market created a perverse incentive to cut down tropical forests—far more efficient at soaking up CO₂—to make way for sugarcane and palm oil trees. When it comes to climate change, projections for how humanity can cap global warming under two degrees Celsius (3.6 degrees Fahrenheit) assume a major role for bio-fuels. But recently scientists have calculated that an area up to twice the size of India would be needed to cultivate them, which may not leave enough land to grow food.
- **Wind farms:** There are some 350,000 wind turbines scattered across the globe producing more than 500 gigawatts of clean, green energy and supplying four percent of global electricity demand.
- **Challenges posed:** According to one estimate, one wind turbine requires 900 tonnes of steel, 2,500 tonnes of concrete and 45 tonnes of plastic. For every tonne of steel produced, 780 kg of coal is used during the extraction phase. The production of every tonne of concrete emits 1.25 tonnes of carbon dioxide. But wind farms are also bird killers: up to 328,000 birds—especially those that fly at night—are felled every year by fast-spinning blades in the United States alone, where there are some 50,000 turbines. They also **disrupt ecosystems**.
- **Case Study:** A scientific study of **wind farms in the Western Ghats**, a UNESCO-listed range of mountains and forest spanning India's west coast, found that predatory raptor birds were four times rarer than in adjacent areas. Their absence cascaded down the food chain and radically altered the density and behaviour of the birds' prey. There was, in particular, an explosion in the raptors' favourite meal: fan-throated lizards.
- **Solar energy:** Photovoltaic solar panels absorb sunlight to generate electricity. This has powered many homes in developing and under-developed countries. It has shown the potential to reduce the consumption of coal for electricity generation.
- **Challenges posed:** conventional methods of solar panel manufacturing release nitrogen trifluoride, a greenhouse gas 17,200-times more potent than carbon dioxide and with an atmospheric tenancy of over seven centuries. High-voltage power generation and transmission requires the use of sulphur hexafluoride, which is 23,500-times more potent than carbon dioxide and lingers in the atmosphere for a millennium.
- **Recycling** is also energy-intensive and can often salvage only a fraction of spent resources. For example, the world produces about 360 million tonnes of plastic a year but only about



9% of all plastic waste is recycled. If production continues to grow at its current rate, recycling a tenth of it will soon be rendered meaningless.

Conclusion:

The need of the hour is to create solutions that are sustainable. The solutions themselves shouldn't pose further challenges, easily scalable and cost saving. Better Research and Development techniques with right validation is the way ahead before deployment on large scale

Case Studies:

- *The Republic of Guinea in equatorial Africa hosts 30% of the world's bauxite reserves as well as large quantities of iron ore. Some 98% of the country is also covered by forests. Aluminium from bauxite is required to make electric cars and high-capacity electric cables. Steel is the most commonly used metal and is used to make windmills and for structural use in urban infrastructure. Imagine the plight of Guinea's forests in the face of rising demand for both these materials.*
- *The Congo, its neighbour, is home to 60% of the world's cobalt. This metal is a critical component of batteries that power smartphones and electric vehicles. Contractors are thought to employ some 35,000 children, forced to work in pitiable conditions, to extract this metal. The mines erected to service this industry have destroyed large tracts of savannah and agriculture land and eliminated the livelihoods of thousands. As the demand for cobalt increases, as it is bound to, the Congo's rainforests are likely to be the next big casualty.*

It is evident that our challenges related to the environment are interwoven with challenges from societal, technological and philosophical perspectives. Analyse.

Livemint

Why this question:

Mankind's progress has had unintended consequences on the environment. These include climate change, extreme weather events and the reduced availability of potable water.

Key demand of the question:

One has to find the reasons for reduced availability of potable water due to human actions, climate change and extreme weather events.

Directive:

Analyse – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Start off with how Unintended consequences of human progress over the past decades have begun to adversely impact the environment we live in, which provides the basic conditions for life on earth to exist.

Body:

Present the various environmental challenges that is posed to us today like lack of potable water etc. Discuss how we can get an understanding to our current environmental challenges can only come from studying them in the context of technology, society and philosophy. Provide solutions to tackle the same.

Conclusion:

Conclude with a way forward.

Introduction:



During last decade, environmental issues have been receiving increasing attention in all spheres of life, including greater coverage in the media. There is also a growing awareness of the need and importance of involving people actively in the protection of environment and management of the natural resources of their locality. Unintended consequences of human progress over the past decades have begun to adversely impact the environment we live in, which provides the basic conditions for life on earth to exist.

Body:**Environmental challenges faced today:**

- The layer of ozone in the upper atmosphere, which protects us from harmful radiation, is being depleted due to our excessive use of aerosol chemicals.
- Predictions made back in the 1980s about climate change are starting to come true. Extreme weather events around the world appear to be more common than before.
- Cities like Chennai and Mumbai get flooded during the monsoon, and yet run out of water later in the year.
- One of the most critical crises that we face today is access to potable water.
- There are three kinds of access problems. The first one is where there are no systems in place for the regular supply of water; for example, in urban slums.
- The second is where there is a regular system in place, but a section of society faces challenges due to the seasonal unavailability of water. This situation is becoming common in cities like Chennai, Bengaluru, Mumbai, and is giving rise to widespread distress.
- The third kind of situation has often been observed in rural areas where people depend on natural sources of drinking water that are fast becoming inaccessible because of pollution and environmental changes.

Environmental challenges are interwoven:

- An understanding of our current environmental challenges can only come from studying them in the context of both technology and society.
- Technology is one of the key attributes of today's human society, one that makes our era entirely different from thousands of years of human presence on earth.
- On one hand, our tech-centred orientation is one of the primary causes of our alienation from nature; on the other, technology can help us cope with the environmental stresses being faced by human society.
- From a different point of view, technology is one of the major factors inducing environmental pollution.
- To accommodate technological progress, humans have always sacrificed the environment, which eventually led to complex issues like climate change and wide-scale biodiversity loss.

Global environmental crisis and its relationship with technology:

- First, how technology can help society manage environmental issues.



- Second, how society can act to manage the externalities of technology within environmentally acceptable standards.
- And third, how technology can aid in evaluating the current environmental condition and its impact on society.

Environmental issues in the context of society:

- we recognize that environmental migration is one of the key issues that future generations will need to cope with.
- The United Nations forecasts that there could be up to 1 billion environmental migrants by 2050, mostly from coastal areas.
- We must think through current land-use changes, diversification of livelihoods at a community level, building resilience, and policies for environmental migrants.
- An added layer of complexity, given our political boundaries, is how humanity should respond to environmental migrants.

Measures needed:

- We must redefine the needs of an individual, and understand the reasons behind increasingly consumeristic lifestyles across the globe. Humans do not harm the environment intentionally.
- Environmental disturbance is a by-product or negative externality of human actions that arise due to our needs and aspirations—in other words, the unintended consequences of human progress.
- Exploring the nature of our progress and the consumption landscape could be one way to address the latter.
- The cycle of production and consumption does not happen in a void. It is a way to respond to individual needs and desires.

Conclusion:

The strategies to ensure sustainable development has at least four important elements, such as ecologically harmonious, efficient and conserve resources including energy, and must aim at local self-reliance and offer equity with social justice. While for the achievements of the first three elements, considerable inputs from the science, technology, economics, and sociology would be needed while equity is a political question calling for the sensitivity and commitments of the political masters and policy makers in letter and spirit.

While the present climate activism movement has certainly helped the cause in terms of raising awareness, it spells out little in terms of meaningful action. Comment with suitable justifications. (250 words).

[Hindustantimes](#)

Why this question:

The article brings out the concerns associated with climate activism and argues over the success of the same.

Key demand of the question:

One must



Discuss the instance of climate activism, explain the challenges involved therein.

Directive:

Comment– here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

In brief narrate what you understand by climate activism.

Body:

Explain the concerns involved as to what are the issues, why the movement of climate activism isn't achieving its true agenda.

What are the flaws? – Failure to recognise the need for a sustainable outcome.

Explain with suitable examples, take hints from the article.

Discuss what needs to be done to ensure the movement achieves true outcomes.

Conclusion:

Conclude with need to foresee and that fighting climate change is a mammoth task and we need all hands-on deck if we are to have a real shot.

Introduction:

Climate change is the greatest threat faced by the world in history, according to a 26-country survey released by the Pew Research Center. The United Nations has called climate change as the “defining issue of our time”.

Body:

More words than actions towards climate activism:

- Awareness and support for climate action has risen rapidly in the recent years, especially amongst the youth.
- 2019 has been a momentous year for climate activism with millions of people protesting for climate action all over the world.
- On September 20, over four million protesters gathered in more than 150 countries making it the largest climate strikes in world history.⁷
- Crowds full of children, youth and even older people have come out and participated in these strikes happening throughout the year.
- Thus, the present climate activism movement has certainly helped the cause in terms of raising awareness.

However, the issue with present climate activism lies in the fact that it spells out little in terms of meaningful action. This is because

- Millions of people striking for a cause without defining what outcomes they expect.
- Asking the governments to declare a state of climate emergency seems a little meaningless, because there are no set actions a government needs to take to accompany that declaration.
- People continue with business as usual, while publicly being in a state of climate emergency accompanied by a loosely defined “action plan”.
- Another issue with the movement in its present form is that it doesn't hold companies or developed countries proportionately accountable.



- **Lack of common but differentiated responsibility:**
 - There is no clarity on responsibilities of the companies and developed nations who are historically responsible for greenhouse emissions
 - developing nations expected by the youth of the world to share equal burden of a problem which has been primarily created by some developed nations

Way forward:

- The climate movement in each city, state or country needs to define what steps they would like to see their governments and the private sector take in different areas such as transport, energy, waste management, urban development and ecosystem management, and protest specifically in demand of their fulfilment.
- There should also be a way for citizens to pledge individual actions, however small, in support of the movement.
- This would highlight the commitment of the supporters and ensure that climate consciousness becomes a part of people's everyday lives instead of being just a once a week 'event'.

"The oxygen bars are the new entrants in the field to tackle pollution in major cities in India". Elucidate. (250 Words)

The Hindu

Why this question:

The article is based on the concept of oxygen bars that are being seen as a new solution to the problems of pollution in the big cities of the country.

Key demand of the question:

One must discuss in detail the relevance of such new idea in controlling the menace of pollution.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In brief narrate that the popularity of packaged air began around four years ago when a Canadian company launched 'canned air' for people in China when air pollution in many cities became alarmingly high.

Body:

Explain that the newer addition — oxygen-bar — a recreational parlour or cafe which serves 'pure oxygen' is becoming a more attractive destination, particularly in cities with dangerous levels of air pollution. At times, the oxygen comes in different scented flavours.

Discuss first the issue of pollution facing the major cities in the country.

Explain what needs to be done.

Conclusion:

Conclude that It definitely calls for serious vigilance by the clinicians and policy makers to ensure the safety issues associated with recreational oxygen use, particularly flavoured oxygen in such bars, parlours and spas.

Introduction:



The popularity of packaged air began around four years ago when a Canadian company launched 'canned air' for people in China when air pollution in many cities became alarmingly high. The newer addition — oxygen-bar — a recreational parlour or cafe which serves 'pure oxygen' is becoming a more attractive destination, particularly in cities with dangerous levels of air pollution. At times, the oxygen comes in different scented flavours.

Body:

An oxygen bar is an establishment, or part of one, that sells oxygen for recreational use. Individual flavored scents may be added to enhance the experience. The flavors in an oxygen bar come from bubbling oxygen through bottles containing aromatic solutions before it reaches the nostrils: most bars use food-grade particles to produce the scent, but some bars use aroma oils.

Issue of pollution facing the major cities in the country

- It is clear that the problem of air pollution has increased very seriously and over the years its intensity and seriousness has grown. In many places there is no proper air quality measurement mechanism. The main constituent of the pollutants is the particulate matter which breaches the standard prescribed by Central Pollution Control Board (CPCB)
- CPCB standards are fairly above the international WHO standards. The standards are breached for longer periods of time.
- The thrust towards renewable energy is time consuming and expensive. Construction and demolition are the two major sources of Particulate Matter in the atmosphere. Most of the vegetation has been denuded, there is deforestation taking place and soil erosion acts a source for Particulate Matter pollution.
- The bad air quality tells you that the governance is not upto mark.
- It is a huge problem and increasing geographically every year.

Benefits of Oxygen bars:

Most claims around the benefits of oxygen bars haven't been scientifically proven. Proponents of oxygen bars claim purified oxygen can help:

- increase energy levels
- improve mood
- improve concentration
- improve sports performance
- reduce stress
- provide relief for headache and migraine
- promote better sleep

Are oxygen bars safe?

- The benefits of oxygen bars haven't really been studied and neither have the risks.



- A healthy person's normal blood oxygen is between 96 and 99 percent saturated with oxygen when breathing normal air, which makes some experts question what value extra oxygen could have.
- Some medical conditions benefit from supplemental oxygen, but even for these people, getting too much can be harmful and even deadly, according to research.
- Administering oxygen to people admitted to the hospital with acute illnesses is a long-held standard practice. However, a study published in 2018 in The Lancet Trusted Source found evidence that oxygen therapy may increase the risk of death when given liberally to people with acute illness and trauma.
- The scents used are delivered by bubbling the oxygen through liquid containing either an oil-free, food-grade additive or an aroma oil such as an essential oil. Inhaling oily substances can potentially lead to a serious inflammation of the lungs, known as lipoid pneumonia.
- The scents used in scented oxygen can also be harmful to some people, especially those with lung diseases. According to the Lung Association, the chemicals in scents and even those made from natural plant extracts can cause allergic reactions that can range from mild to severe.
- Unlike conventional oxygen therapies used in respiratory conditions that is administered for a short or long period in hospital or at home, people take oxygen for an ultra-short period in these bars (30 minutes or less).
- As per the standard clinical procedure, oxygen supplementation can be administered only in case of hypoxemia (lowering of oxygen saturation in the arterial blood below 95%) and it does not have any consistent beneficial effect on non-hypoxemic patients.

Conclusion:

It is unfortunate that no medical community has come forward to spread awareness among people for this increasingly captivating yet unscientific business with no known or established clinical benefit. It definitely calls for serious vigilance by the clinicians and policy makers to ensure the safety issues associated with recreational oxygen use, particularly flavoured oxygen in such bars, parlours and spas.

Evaluate the factors leading to the high levels of pollution in Indian rivers. What can be done to protect and prevent our rivers from degradation and slow death? Discuss. (250 words).

The Hindu

Why this question:

A study conducted by Central Water Commission (CWC) from May 2014 to April 2018 revealed that India's major river systems are contaminated with heavy metals.

Key demand of the question:

One must evaluate the factors leading to the high levels of pollution in Indian rivers and discuss what can be done to protect and prevent our rivers from degradation and slow death.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

**Introduction:**

State the findings of the report; quote the facts and relevant case study.

Body:

First discuss the main sources of river pollution – agriculture, mining, milling, plating and surface finishing industries that discharge a variety of toxic metals.

Discuss then their impact.

Quote the discussion provided by the report of CWC.

Take hints from the article and cover relevant aspects.

Conclusion:

Conclude with urgency to address the issue of River pollution in the country.

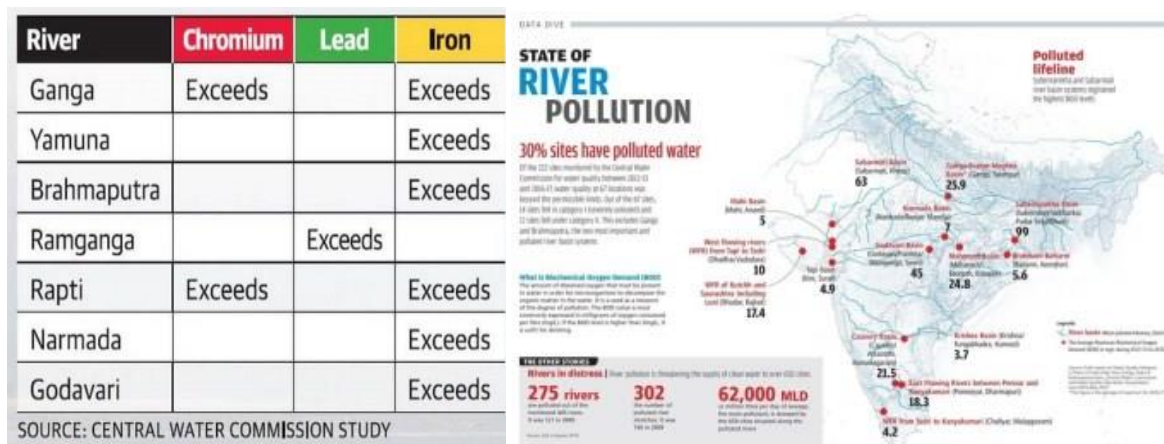
Introduction:

Rivers are increasingly being treated as lifelines to an ever-growing population, the realisation of which is still to sink in as far as India is concerned. More than half the rivers in India are polluted, with the developing economic power unlikely to meet demand for fresh water from its still-growing population. Samples taken from two-thirds of the water quality stations spanning India's major rivers showed contamination by one or more heavy metals, exceeding safe limits set by the Bureau of Indian Standards.

Body:

Findings from the third edition of an exercise conducted by the Central Water Commission (CWC) from May 2014 to April 2018:

- The study spanned 67 rivers in 20 river basins.
- Samples from only one-third of water quality stations were safe.
- The rest, or 287 (65%) of the 442 sampled, were polluted by heavy metals.
- Samples from 101 stations had contamination by two metals, six stations saw contamination by three metals.
- Iron emerged as the most common contaminant with 156 of the sampled sites registering levels of the metal above safe limits.
- None of the sites registered arsenic levels above the safe limit.
- The other major contaminants found in the samples were lead, nickel, chromium, cadmium and copper.
- Lead, cadmium, nickel, chromium and copper contamination were more common in non-monsoon periods while iron, lead, chromium and copper exceeded 'tolerance limits' in monsoon periods most of the time.
- Arsenic and zinc are the two toxic metals whose concentration was always obtained within the limits throughout the study period.



Factors behind high pollution of rivers:

- Chemicals & Effluents**
 - The main sources of heavy metal pollution are **mining, milling, plating and surface finishing industries** that discharge a variety of toxic metals into the environment.
 - Industrialisation along the river belt is polluting the water with chemicals and other industrial effluents.
 - While large corporations adopt advanced techniques to treat effluents and chemicals to negate or reduce their toxicity, smaller firms often have no such considerations and violate environment safety standards.
- Failure of regulatory agencies and implementation of laws:**
 - According to the recent finding of the Central Pollution Control Board that the number of critically polluted segments of India's rivers has risen to 351 from 302 two years ago is a strong indictment of the departments responsible for environmental protection.
 - The data show that the **plethora of laws** enacted to regulate waste management and protect water quality are **simply not working**.
 - The study by CPCB also underscores the **failure of many national programmes** run by the Centre for river conservation, preservation of wetlands, and water quality monitoring.
 - Low priority is accorded to the enforcement of laws by SPCBs and pollution control committees.**
- Garbage Dumping**
 - High population density around the river banks and the reckless dumping of non-biodegradable waste, especially plastics, is further adding to water pollution.
 - Despite warning and strict fines imposed by local administrations on those found dumping garbage into rivers and their estuaries, this uncivilised practice continues unabated.



- The other reasons for contamination are **population growth and rise in agricultural and industrial activities.**
- **Washing & Sewage**
 - Laundering clothes on river banks is a common sight in India. Modern detergents are made of chemicals that contaminate river waters.
 - Defecating around river banks is yet another horrible practice in rural parts of the country that contributes to rising pollution of rivers in India.
 - The situation is worsened by local administrations and private operators of sewage collection tankers dumping the waste in rivers and their estuaries.
- **Cremation & Last Rites**
 - Devout Hindus attach a lot of significance to life after death. Hence, cremation grounds in rural India are located on the banks of rivers.
 - Varanasi, also known as Kashi, is one such place with cremation grounds located right on banks of river Ganga which is also one of the longest rivers in India.
 - Unfortunately, lots of Indians families that cannot afford cremation consign mortal remains of loved ones to rivers. These human cadavers cause severe water pollution.
- **Sand Dredging**
 - High-quality sand from river beds is needed for India's booming construction industry. This has led to rising pollution in Indian rivers.
 - Dredging operators- usually the unlicensed ones- deploy kerosene and diesel-fueled cheap watercraft manned by cheap labour for sand dredging. Engines of these boats cause pollution.

Measures needed to protect and prevent our rivers from degradation and slow death:

- **CPCB** should be reporting more frequently on pollution, and carrying out intensive measures through State Pollution Control Boards to eliminate pollutants, starting with sewage and industrial effluents.
- Low priority accorded to enforcement of laws by the SPCBs and Pollution Control Committees. So the immediate plan should be to expand the supply of treatment plants. Sustained civil society pressure on governments is vital to ensure that this is done in a time-bound manner.
- On the industrial side, the plan to bring all liquid effluent discharge from textile units and tanneries to zero has to be pursued vigorously, giving industries the assistance to help them choose the best technologies for the recovery of waste water for reuse.
- These measures are urgently needed to revive India's many dying rivers, protect its agriculture, and prevent serious harm to public health from contaminated water.



- All state governments must make it mandatory to have rain water harvesting techniques in government as well as private buildings and make roof water and surface harvesting mandatory.
- **Include embankments, embankment roads, and roads on either side of the river** need to be developed as greenways, with walkways, cycle paths and recreational centres to facilitate the link between citizens and the river.
- **Rejuvenation of wetlands:** These wetlands can store millions of gallons of flood water and recharge ground water and also enhance the river flow during lean period
- **Reforestation and protection of forested catchments:** Forested catchments reduce soil erosion and siltation of the river, they regulate stream flows and micro climate. A protected catchment automatically means lesser silt in rivers
- **Vegetated and protected riparian banks:** These protect the river banks, reduce erosion and maintain water quality.

Way forward:

- The immediate plan should be to **expand the supply of treatment plants**.
- **Civil societies** pressure on the Government is the vital aspect.
- All liquid effluent discharge from the textile units and tanneries should be brought down to zero and it is to be pursued rigorously. Assistance to be given to industries to choose the best technologies for recovery of waste waters for reuse.
- By adopting a zero-waste lifestyle that consists of “**Rethink, Reduce, Reuse, Recycle, Compost and Close the Loop (4R2C)**”, we can limit our trash output and save tonnes of solid waste from ending up in landfills and rivers.
- The adoption of a river can also be done as a part of corporate sustainability responsibility programmes organised together with the local communities with the support of local government agencies.
- These measures are urgently needed to revive India’s many dying rivers, protect its agriculture, and prevent serious harm to public health from contaminated water.

“Agriculture will play a crucial role in addressing the planet’s future challenge and is a key to providing important adaptation, mitigation synergies to climate change as well as socio-economic and environmental co-benefits.” In the context of the statement discuss the concept of Climate Smart Farming Systems and its relevance. (250 Words).

PIB Government of India

The question is based on the concept of Climate Smart Farming Systems.

Key demand of the question:

One must explain what is Climate Smart Farming Systems and relevance of agriculture and its contribution in mitigating the effects of climate change.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

**Introduction:**

Start by stating that International Seminar on Climate Smart Farming Systems' for BIMSTEC countries is being held in Delhi.

Body:

Define – Climate-Smart Agriculture (CSA) is an approach to help farmers respond effectively to climate change and ensure food security.

State the objectives of it –

Sustainably increasing agricultural productivity and incomes;

Adapting and building resilience to climate change; and

greenhouse gas emissions mitigation

discuss the important aspects of it – methods, impact and utility,

Conclusion: Conclude by highlighting the significance of it.

Introduction:

Agricultural production systems are facing increasing competition from other sectors for limited natural resources. The availability of these resources and their quality are also being affected by unsustainable management practices and changing climatic and weather conditions. To respond to this situation, the agriculture sectors must improve their sustainability performance and adapt to the impacts of climate change in ways that do not compromise global efforts to ensure food security for all. **FAO defines Climate-smart agriculture (CSA)** as “agriculture that sustainably increases productivity, enhances resilience (adaptation), reduces/removes GHGs (mitigation) where possible, and enhances achievement of national food security and development goals

Body:

Climate-smart agriculture (CSA) is an approach for transforming and reorienting agricultural production systems and food value chains so that they support sustainable development and can ensure food security under climate change.

Relevance of CSA:

- **Increased productivity:** Produce more food to improve food and nutrition security and boost the incomes of 75 percent of the world's poor who live in rural areas and mainly rely on agriculture for their livelihoods.
- **Enhanced resilience:** Reduce vulnerability to drought, pests, disease, and other shocks; and improve capacity to adapt and grow in the face of longer-term stresses like shortened seasons and erratic weather patterns.
- **Reduced emissions:** Pursue lower emissions for each calorie or kilo of food produced, avoid deforestation from agriculture and identify ways to suck carbon out of the atmosphere.
- The climate-smart agriculture approach seeks to reduce trade-offs and promote synergies to make crop and livestock systems, forestry, and fisheries and aquaculture more productive and more sustainable.

Challenges:

- With patchy rains, crop failures become common. There is hardly any greenery in many villages, making it difficult for farmers to even maintain cattle.



- Quick adaptation for new changes is hard, with farmers varying and mixing crops across seasons, along with heavy investments in borewells, tractors, and threshers.
- Because of continuous crop failures, farmers are increasingly abandoning their lands and heading to nearby towns to find work as laborers.
- Though India is fortunate to have the monsoon, it is also uniquely vulnerable to rising temperatures, with the country ranked 14th on the Global Climate Risk Index 2019.
- India has over 120 million hectares of land suffering from some form of degradation. This has consequences, especially for marginal farmers.
- According to one estimate, they may face a 24-58% decline in household income and 12-33% rise in household poverty through exacerbated droughts.
- With rain-fed agriculture practiced in over 67% of our total crop area, weather variability can lead to heavy costs, especially for coarse grains (which are mostly grown in rain-fed areas).
- A predicted 70% decline in summer rains by 2050 would devastate Indian agriculture.
- Within 80 years, our Kharif season could face a significant rise in average temperatures (0.7-3.3°C) with rainfall concomitantly impacted, and potentially leading to a 22% decline in wheat yield in the rabi season, while rice yield could decline by 15%.

Measures needed:

- Farmers, especially smallholder farmers, need advance warning of emergent weather conditions at a local level.
- Mobile telecommunication systems are increasingly cost-effective and an efficient way of delivering weather-based agro-advisories to farmers at a large scale.
- Radio (especially community radio), television, newspapers, folk media, and village level public address systems will also need to be used to bridge this “communication divide.”
- Weather-based agro-advisories must be locale-, crop-and farmer-specific; need to also recommend soil, water, and biodiversity conservation practices.
- Build adaptive capacities to climate variability and strengthen the sustainability of farming systems.
- On-site training and awareness campaigns, technology demonstrations, farmer-specialist interactions, and engagement with local governance bodies.
- Soil health and need-based irrigation management need to be addressed adequately.
- Closer collaboration between public, civil society, and private technology and financial service providers so that farmers get access to accurate information, and affordable technologies

Conclusion:

Climate-smart agriculture is not a new agricultural system, nor a set of practices. It is an innovative approach for charting development pathways that can make the agriculture sectors more productive and sustainable and better able to contribute to climate change adaptation and mitigation.



The Wular lake, once Asia's largest freshwater lake but today little more than a big pond. In the light of above statement, discuss the challenges faced in safeguarding the lake ecosystem and provide measures. (250 words)

The Wire

Why this question:

Wular lake, once Asia's largest freshwater lake but today little more than a big pond. It once occupied an area of 272 sq. km but has since shrunk to 72 sq. km, with only 24 sq. km of open water left.

Key demand of the question:

One has to discuss the various reasons for degradation of the lake ecosystems in India and provide the measures for safeguarding the same.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

One can start off with the importance of lakes in a given environment. Further substantiate it with the context of the Wular lake itself.

Body:

Discuss the challenges faced in safeguarding the lake ecosystem?

Encroachment and increasing stress on the lake boundaries

Dumping of the solid waste, sewerage etc.

Industrial and residential effluents from the cities that discharge into the lake

spread of the invasive alligator weed is slowly destroying the beneficial vegetation growing in the lake

Increasing siltation etc.

How can this be overcome?

Conclusion:

Conclude with a way forward.

Introduction:

Lakes are kind of wetland which are areas where water is the primary factor controlling the environment and the associated plant and animal life. Healthy lakes and their shores not only provide us with a number of environmental benefits but they influence our quality of life and they strengthen our economy. Wular lake, once Asia's largest freshwater lake but today little more than a big pond. It once occupied an area of 272 sq. km but has since shrunk to 72 sq. km, with only 24 sq. km of open water left.

Body:

Challenges to the lake ecosystem:

- Lakes or wetlands near urban centres are under **increasing developmental pressure** for residential, industrial and commercial facilities. For e.g.: There are 42 villages with over nine lakh people living near Wular lake which has led to increased dumping of waste into the water, including detergents and other.



- Vast stretches of wetlands have been **converted to paddy fields**. Construction of a **large number of reservoirs, canals and dams** to provide for irrigation significantly altered the hydrology of the associated lakes.
- There is growing concern about the effect of industrial pollution on drinking water supplies and the biological diversity of lakes. For e.g.: **Industrial and residential effluents** from the cities that discharge into the Wular lake has deteriorated.
- **Increased air temperature; shifts in precipitation; increased frequency of storms, droughts, and floods; increased atmospheric carbon dioxide concentration; and sea level rise** could also affect lakes.
- The removal of material from a wetland or river bed. **Dredging of streams lowers the surrounding water table** and dries up adjacent lakes.
- Water is drained from wetlands by cutting ditches into the ground which collect and transport water out of the lakes. This lowers the water table and dries out the lakes.
- Indian lakes are threatened by **invasive alien species** – exotic introduced plant species such as water hyacinth and salvinia. They clog waterways and compete with native vegetation. E.g.: Invasive alligator weed is slowly destroying the beneficial vegetation growing in the lake.
- **Over withdrawal of groundwater** has led to **salinization of the lakes**.
- **Administrative logjam**: For e.g.: Since Kashmir is a conflict zone, anything Baba wanted to do first required him to secure permissions from the army, the navy, the Central Reserve Police Force and the local police, as well as from the Water Conservation and Management Authority set up in 2012 to clean up the lake. Wular is the only lake in India to be guarded by the national navy.

Measures to safeguard the lake ecosystem:

- Dredging of dried lake beds and tank beds in the drought affected areas.
- Implementation of Wetland Conservation measures as per Ramsar Convention.
- Digging deep trenches surrounding the lakes to avoid waste dumping, especially in urban areas.
- Exclusive missions of various state governments like Mission Kakatiya of Telangana for rejuvenating lakes, ponds and tanks.
- Rejuvenation works taken up under MGNREGA, PMKSY etc.
- New Municipal and Solid Waste Management Rules mandates segregation, recycling and reuse of waste, and emphasis on waste treatment before discharging.
- The green tribunal incentivised the states to act against polluters in a **“polluter pays” model**.
- Hefty fines, for lax state and local governments as well as private sector polluters, will go a long way in ensuring action against pollution.

Conclusion:



Without making the citizens aware of the importance and benefits of lakes and wetlands in their lives, it is extremely difficult to implement laws effectively. Stakeholder participation and capacity building must be used as an important instrument for better management of urban waterbodies.

If climate change is the defining issue of the century, the UN conference in Madrid failed miserably in galvanising action to address it. Elaborate.(250 words)

The Hindu

The Wire

Why this question:

At COP 25 in Madrid, the countries party to the Paris Agreement failed to agree on rules and procedures to govern a global carbon market, on finance for losses caused by extreme weather events, on meeting the commitments made before the agreement and on raising their ambitions. The final declaration was desultory, merely expressing serious concern at the emissions gap in seeking to limit temperature increase to 1.5° C.

Key demand of the question:

One has to discuss the reasons for failure of the COP25 meeting and the implications of failures of the talks on the planet Earth as well as the developing and small nations.

Directive:

Elaborate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

One can start off with the quoting the various facts of climate change using the scientific reports from the Intergovernmental Panel on Climate Change warning of near-certain catastrophic consequences of inaction, and an analysis from the UN Environment Programme on the gap between current greenhouse gas emissions and the limit over the coming decade.

Body:

Discuss in brief the challenges faced due to climate change effects. the real losses from extreme weather events that climate-vulnerable countries, India included, are facing with frightening regularity.

even insured losses worldwide during 2017 and 2018 together stood at a record \$225 billion

Now, discuss the various reasons for the failure of the COP25 talks. unproductive wrangle over establishing a market system to trade in carbon credits earned through reductions in emissions, with some countries eager to cash in on poorly audited emissions savings from the Clean Development Mechanism of the Kyoto Protocol that preceded the Paris pact the divergence between the developed and developing countries grew over the course of two weeks as the developed world – led by the US – blocked any attempt at a compromise using a ‘take it or leave it approach’.

Developed countries also refused to relent on the question losses suffered by developing countries due to climate impact.

What are the implications of the failure of talks?

What are the measures needed to overcome?

Conclusion:

Conclude with a way forward.

Introduction:

The UN Framework Convention on Climate Change (UNFCCC) conference (COP25) was held from 2 to 13 December 2019 in Madrid, Spain. Despite extending the meeting for 2 days, the outcome is disappointing. The countries party to the Paris Agreement **failed to agree on rules and procedures**



to govern a global carbon market, on finance for losses caused by extreme weather events, on meeting the commitments made before the agreement and on raising their ambitions.

Body:

Outcomes of the COP25:

- This year's UN talks **focused on narrow technical issues** such as the **workings of the global carbon markets**, a means by which countries can trade their successes in cutting emissions with other countries that have not cut their own emissions fast enough. However, **no agreement has been reached and the issue will be resolved next year**.
- The developed and the developing worlds had opposite views on each of these was clear from the beginning of COP25, but the divergence only grew over the course of two weeks as the developed world – led by the US – blocked any attempt at a compromise using a **'take it or leave it approach'**.
- The US was blamed for refusing to agree to developing countries' demands under what is known in the UN jargon as the **Warsaw International Mechanism (WIM)**.
- At COP25, the **developed world didn't honour CBDR**, instead pushing back against any decision, often with strong language, on the provision of finance to developing countries to help them mitigate, adapt and deal with losses due to climate change.
- It also **blocked any commitments to meet its emissions reductions under the Kyoto Protocol**, the outgoing climate regime to be replaced by the Paris Agreement next year.
- Developed countries also refused to relent on the question losses suffered by developing countries due to climate impact.
- Weary negotiators wrangled over the wording of provisions for "loss and damage", by which developing countries are hoping to receive financial assistance for the ravages they face from climate breakdown.
- Climate negotiators might have tossed the more intractable questions — **raising \$100 billion a year from 2020 for developing countries**, creating a strong framework to address loss and damage from climate events and transferring technology to poorer countries on reasonable terms
- Few countries came to this year's talks with updated plans to reach the Paris goals, though the EU finally agreed its long-term target of reaching net zero emissions by 2050.
- A **"high ambition coalition"** made up of the EU and many smaller developing countries pressed for a resolution to ask all governments to formulate stronger national plans on cutting carbon. However, **no substantive decision on future emission cuts** was made.
- After two extra days and nights of negotiations, delegates finally agreed a deal that will see new, improved carbon cutting plans on the table by the time of the Glasgow conference next year.

India's stand on the COP25:

- India played a strong role in critiquing the developed world's continuing poor record on climate action.



- It argued that unless a stocktaking exercise of the fulfillment of various pre-2020 commitments by developed countries (such as those made at Copenhagen, Cancun and Kyoto) showed that they were making significant progress, India would not raise its climate ambition for its next round of Paris Agreement targets due in 2020.
- It is entirely appropriate for countries such as India to insist on not taking on an even more unfair share of the global mitigation burden unless developed countries deliver on the minimal parameter of fulfilling their existing promises.
- India also took a lead in calling for more finance for developing countries for climate action, with the minister emphasising that “not even 2 per cent” of the promised “\$1 trillion in the last 10 years” had been delivered.

Way forward:

- All parties will need to address the gap between what the science says is necessary to avoid dangerous climate change, and the current state of play which would see the world go past this threshold in the 2030s.
- As India prepares to face calls for higher ambition in 2020 and beyond, India has to involve its States in mitigation and adaptation efforts.
- It is crucial that India continue to push developed countries in this fashion as the entire global climate action framework has been put in jeopardy by the inaction of big polluters.

As the Prime Minister advises states along the river to shift focus from Namami to Arth Ganga, it is clear that the Ganga cannot be restored by only pollution-abatement measures. Discuss. (250 words)

Down To Earth

Why this question:

Recently, the Ganga Council headed by Prime Minister (PM), in its first meeting held on December 14, 2019, floated a plan to promote sustainable agriculture in the Gangetic plain by promoting organic clusters in a five-km stretch on both sides of the Ganga basin in Uttarakhand, UP, Bihar, Jharkhand and West Bengal.

It is a good policy move, considering the cumulative use of pesticides has doubled in the last one decade and most of it runs off in our rivers. For the short-term, the five-km stretch is fine, but the government should eventually plan to stretch it to cover more area in the basin. Agriculture along the entire riverbed should be organic.

Key demand of the question

The question is about analysing the significance of Namami Gange programme and the achievements made by it. One has to further discuss the challenges faced and measures needed to set the problems straight.

Directive word

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer

Introduction:

In a few introductory lines brief upon the background and mission objectives of NMCG.

Body:

The question must discuss the following points:

The successes of NMCG so far:



Namami Gange has completed 114 projects and about 150 projects are in progress, while about 40 projects are under tendering, of which 51 sewage projects were approved before May 13, 2015 — the day Namami Gange was approved by the Union Cabinet.

Till April 2019, 1,930 MLD of sewerage treatment capacity in 97 Ganga towns has been developed, whereas the sewerage generation in these towns is 2,953 MLD.

It is further projected that the sewerage generation would touch 3,700 MLD by 2035.

The failures, challenges facing in the revival of Ganga

The industrial pollutants largely originate from tanneries in Kanpur, paper mills, distilleries and sugar mills in the Yamuna, Ramganga, Hindon and Kali river catchments.

Then, there is the huge load of municipal sewage which contributes two-thirds of total pollution load.

Water in India is a state subject and water management is not a truly knowledge-based practice.

The management of the Ganga lacked basin-wide integration and is not very cohesive between various riparian states.

Further, there is a greater challenge of upgrading the water supply and wastewater treatment infrastructure in the designated smart cities and of providing clean water supply to all rural households by 2024 under the Jal Jeevan Mission.

Critical steps needed to overcome the challenges:

Promote only decentralised sewage treatment plants (dSTP) at the colony level.

Develop and restore local storages (ponds, lakes, wetlands) as permanent solutions to both floods and droughts.

Conclusion:

Give a balanced way forward.

Introduction:

Namami Gange Programme is an umbrella programme which integrates previous and currently ongoing initiatives by enhancing efficiency, extracting synergies and supplementing them with more comprehensive & better coordinated interventions. National Mission for Clean Ganga (NMCG) endeavours to deploy best available knowledge and resources across the world for Ganga rejuvenation. Clean Ganga has been a perennial attraction for many international countries that have expertise in river rejuvenation.

Body:

Salient features of Namami Gange programme:

- River front development.
- Conservation of Aquatic life and biodiversity
- Improvement of coverage of sewerage infrastructure in habitations on banks of Ganga.
- River Surface cleaning for collection of floating solid waste from the surface of the Ghats and River
- Afforestation
- Industrial Effluent Monitoring
- Development of Ganga Gram
- Creating Public Awareness

Achievements of Namami Gange:



- Namami Gange has a well-balanced spread of 221 projects, which include STP, ghat development, surface cleaning afforestation, sanitation, and public awareness, out of which 58 have been completed.
- There is a concerted focus on 10 towns that contribute to 64% of the total sewage discharged in Ganga.
- To address the cross-functional challenge faced by GAP, Namami Gange has synergized itself with government schemes by signing MoUs with 10 central ministries.
- More than 90 per cent villages across river Ganga have been declared open defecation free, and by October 2017, the rest of the villages would become ODF as well.
- The programme has also successfully renovated over 180 ghats and built 112 new crematoriums.
- 4,464 villages situated on the bank of Ganga have been declared as open defecation free (ODF). Moreover, Namami Gange was instrumental in constructing more than 12.7 lakhs household toilets.
- Trash skimmers have been deployed in 11 cities to collect any surface waste.
- Six public outreach programmes were organised in areas around Ganga basin:
 - Swachhata Pakhwada
 - Ganga Sankalp Divas
 - Ganga Nirikshan Yatra
 - Ganga Dusshera
 - Ganga Vriksharopan Saptah
 - Swachhta Hi Seva Pakhwada

Challenges:

- According to the Central Pollution Control Board (CPCB)'s estimates, approximately 8,250 million litres per day (MLD) of wastewater is generated from towns in the Ganga basin, while treatment facilities exist only for 3,500 MLD and roughly 2,550 MLD of this wastewater is discharged directly into the Ganga.
- The industrial pollutants largely originate from tanneries in Kanpur, paper mills, distilleries and sugar mills in the Yamuna, Ramganga, Hindon and Kali river catchments.
- there is the huge load of municipal sewage which contributes two-thirds of total pollution load
- The National Green Tribunal (NGT) in November 2019 had imposed a penalty of Rs 10 crore on the Uttar Pradesh (UP) government for failing to check sewage discharge containing toxic chromium into the Ganga at Rania and Rakhi Mandi in Kanpur.
- The cost of the damage was assessed by the state pollution control board (UPPCB) as compensation for restoration of environment and the public health in the area.



- Plastic has also caused significant damage to this stretch. “Kolkata produces 2,114 tonnes of solid waste per day of which 10 per cent is plastic
- There have been issues regarding untreated waste that flows into the river, restoring the flow of the river, sludge management in Ganga basin towns, cost overruns in execution of projects and governance glitches
- CAG in its report claimed that the NMCG neither circulated Ganga Rejuvenation Basin Management Programme (GRBMP) to different ministries/departments for consultation and seeking their opinion, nor finalised the Ganga Rejuvenation Basin Management Programme (GRBMP) for initiating the long-term intervention on the Ganga.

Way forward:

- **Promote only decentralized sewage treatment plants (dSTP)** at the colony level. Reuse treated wastewater for irrigation and empty into natural drains.
- For all upcoming cities, smart cities and for those, whose master plans are not in place, earmark land for dSTPs. dSTPs below 10 MLD should be encouraged and incentivised under urban development schemes and real estate development.
- **The existing and planned STPs need to be verified on efficiency,** reliability and technology parameters by independent agencies (tech-efficiency-reliability verification).
- This will allow assessing if the technology provides value for money and is sustainable. Many STPs are not performing up to desired standards due to choice of unrealistic assumptions and erroneous technology choice.
- A survey conducted by CPCB in 2016 found that most STPs in Kanpur fail to comply with environmental regulations.
- **Develop and restore local storages (ponds, lakes, wetlands)** as permanent solutions to both floods and droughts.
- Only 10 per cent of water received during monsoon rainfall is harvested. Restoration of ponds, lakes and wetlands should be an integral part of river restoration and conservation strategy.
- **Bring back glory to all natural drains that empty into rivers,** and transform and rejuvenate them into healthy water bodies — they have been converted to sewage carrying drains by our municipalities and planning bodies.
- **Start restoring lower order streams and smaller tributaries in the Ganga Basin.** Every river is important. The focus of Ganga Action Plan (Phase I and II) and Namami Gange has been on the main stem of the river.
- The tributaries that feed the river were overlooked. The Ganga has eight major tributaries (Yamuna, Son, Ramganga, Gomti, Ghaghra, Gandak, Kosi and Damodar).
- The majority of the funds were spent on pollution-abatement measures on the main stem of the Ganga and on the upper Yamuna basin, which constitute just 20 per cent of the Ganga basin.



- Further, these eight major tributaries are joined by smaller rivers, whose restoration is equally important.
- **Identify, define and protect 'river-corridors' as areas for no cement-concrete structures** — know that rivers have been formed after thousands of years of nature's work.
- Infrastructure development and destruction of river ecosystem through populist measures such as riverfront developments in the name of area and township development projects or urban / smart city development must be stopped to protect and conserve surface water sources.
- Map the entire looped length of each and every tributary of the Ganga and correct the land records.
- Many of the rivers have been underestimated which causes encroachment and jurisdiction conflicts.
- The existing methodology to measure river length is flawed and complete mapping of looped lengths is required for proper assessment of water resources and correct revenue maps.
- This will ensure that active flood plains and river-corridors are free from encroachments.
- Restore base flows through groundwater recharge. Groundwater contributes significantly to river-flows through base flows (average base flow in the order of 40- 55 per cent) especially during lean seasons in the entire Ganga Basin.
- The idea of Ganga rejuvenation is also linked to groundwater rejuvenation. There is a **need to have robust planning and regulation of withdrawal and recharge of groundwater across all orders of the river streams to make rivers perennial.**
- **Define the desired ecological flow regime(s) in the Ganga main stem and its tributaries** (not just a static figure) to allow the rejuvenation of the river.
- Evolve new and innovative ways to generate sufficient revenues for operation and maintenance (O&M) of water and wastewater infrastructure through pricing and valuing water.

Conclusion:

Ganga is an integral part of the socio-eco-cultural-political fabric of India. However, the longest river has faced the brunt of increasing industrialization, which has not only affected the flow but also the quality of its water. Namami Gange Programme aims to restore the purity and flow of water in the Ganga River through abatement of pollutants and treatment of discharged water. Namami Gange has not only taken lessons from the failure of GAP, but, it has also ensured cross-state cooperation as well as public support to expedite the processes.

If India is to establish itself as a country of doers, containing pollution is one of the first things to be done. Discuss. (250 words)

Live Mint

Why this question:

According to a report by the Global Alliance on Health and Pollution (GAHP), based on a study that estimated the impact of contaminants in the air, water and workplace, India tops the world's chart on pollution-linked deaths, followed by China and Nigeria. More than 2.3 million premature deaths



caused by pollution were reported in India in 2017, the latest year for which the figures are available. In comparison, about 1.9 million people died in China, while in Nigeria the death count was 279,318, according to the report.

Key demand of the question

The question is about analysing the worsening pollution conditions in India and the associated concerns. Discuss about the various short-term measures undertaken by the Government and how policymakers have displayed little urgency on the matter. Provide serious measures to tackle the same.

Directive word

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer

Introduction:

In a few introductory lines brief upon the worsening pollution conditions in India and the associated concerns.

Body:

The question must discuss the following points:

Present some facts from the report, discuss the causes of the present condition.

Impact of the air pollution in Indian cities under various heads like Health, economy, society etc.

Provide for a detailed analysis of why have the problems turned into a menace and then move onto suggest measures to tackle the same.

Conclusion:

Give a balanced way forward.

Introduction:

Air pollution in India is not simply an environmental problem, but a major public health concern. It impacts all those breathing in the polluted air —children, the elderly, women and men alike. As Delhi's Air Quality Index crosses 500, the national capital has officially entered the public health emergency category.

Body:

Current air pollution scenario:

- According to a report by the Global Alliance on Health and Pollution (GAHP), based on a study that estimated the impact of contaminants in the air, water and workplace, India tops the world's chart on pollution-linked deaths, followed by China and Nigeria.
- More than 2.3 million premature deaths caused by pollution were reported in India in 2017, the latest year for which the figures are available.
- In comparison, about 1.9 million people died in China, while in Nigeria the death count was 279,318, according to the report.

Challenges posed by air pollution:

- The role of air pollution in climate change dynamics is a question that must be urgently addressed.
- For example, the importance of air pollution and greenhouse warming vs. aerosol cooling needs to be discussed with air pollution cooling, dominated by aerosol content



- Many open questions still remain, such as the measurement and monitoring of air pollution, including the exploration of new technologies and methods like remote sensing and in-situ observations.
- Air pollution also impacts historic and modern buildings and materials, affecting sites of cultural heritage by damaging structural materials of monuments, statues, and even paintings.
- Air pollution has become a year-round phenomenon particularly in north India which causes health impacts far beyond the seasonal rise of respiratory illnesses.
- It is now the leading risk factor for chronic obstructive lung disease in India, and a major contributor to pneumonia and lung cancer.
- In 2017, air pollution accounted for 12.4 lakh deaths in India, which included 6.7 lakh deaths due to outdoor particulate matter air pollution and 4.8 lakh deaths due to household air pollution.
- According to a report by the **United Nations Environment Programme (UNEP)**, India had the highest share of welfare costs (or a loss of income from labour), of about \$220 billion (about ₹1.4 trillion), in South and South-East Asia of a combined total of \$380 billion from mortality due to air pollution.
- In addition to human lives lost, there's an estimated global cost of \$225 billion in lost labour, and trillions in medical costs, Greenpeace report says.
- Government is keen to ascend the World Bank's "ease of doing business" chart, but images of people walking around Delhi in safety masks do little to attract investment.

India's actions so far:

- India's figures highlight the gravity of the crisis we face.
- While action needs to be taken, policymakers have displayed little urgency on the matter.
- Most public discourse centres on questionable short-term measures, like an odd-even scheme for private vehicles, while efforts to stop stubble-burning by farmers have yielded very few gains.
- India, however, has yet to formulate a credible policy mix that could achieve demonstrable results.
- Cases of respiratory diseases, especially among the elderly and children, are on the rise. Other health complications have arisen too.

Measures needed:

- Short term measures should be accompanied by measures that **increase the forest cover** of the land and provide farmers with an alternative to burning the remains of their crops.
- An innovative approach could be to **use climate change funds to turn farm residues into a resource**, using technological options such as converting them into **biofuels** and **biofertilizers**.
- **Proactive engagements are necessary to persuade and reassure farmers.**



- It is important to find other uses for stubble such as biomass, which may encourage farmers to look for **alternative sources of income**.
- India should at least now give high importance to the **WHO warning about air pollution being the new tobacco**. Sharply escalated, deterrent parking fees can be implemented.
- From an urban development perspective, large cities should reorient their investments to **prioritise public transport, favouring electric mobility**.
- **Incentives** for adoption of **alternate mobility technologies** should be promoted.
- The **World Bank** has said it is keen to enhance its lending portfolio to tackle air pollution, opening a new avenue for this.
- Governments should make the **use of personal vehicles in cities less attractive** through **strict road pricing mechanisms** like **Congestion tax, Green-house Gas tax**
- Need to speed up the journey towards **LPG and solar-powered stoves**.
- **Addressing vehicular emissions** is within India's grasp but requires a multi-pronged approach. It needs to combine the already-proposed tighter emission norms (in form of BS VI), with a push for shared mobility and public transport and adoption of alternate mobility technologies.
- NCAP should take precedence from emerging practices in the country—**pollution cess in Delhi on truck entry, big diesel cars, and diesel fuel sales and the coal cess**—to generate dedicated funds to finance clean air action plan.
- **Tackle road dust** by **mechanised sweeping** and **water-sprinkling** but what would be more beneficial is if the sides of the roads could be paved or covered with grass that holds the soil together and stops the production of the dust in the first place.
- Attention to non-technological aspects such as **urban planning, to reduce driving, and to increase cycling, walking, and use of public transport are needed**.

Carbon market has been a major contentious issue at Madrid climate talks, dividing the developed and developing world. What is the concept? Why was it felt necessary? And what are the major points of disagreement? Analyse. (250 words)

Indian Express

Why this question:

Almost halfway through the climate conference in Madrid, one big thing it had to resolve was the disagreements over setting up a new carbon market that has remained contentious as ever. Thus the question aims to analyse the concept of carbon market in such pretext.

Key demand of the question:

One must provide for a detailed analysis of carbon markets and examine the mechanism in detail along with the associated pros and cons.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

In first, explain the context of the question.

Body:



Carbon markets, which allow for buying and selling of carbon emissions with the objective of reducing global emissions, is an unfinished agenda from last year's meeting in Katowice, Poland. Under the Paris Agreement, every country has to take action to fight climate change. These actions need not necessarily be in the form of reduction in greenhouse gas emissions, which can constrain economic growth.

Explain then – what the points of contention are; the main tussle is over two or three broad issues — what happens to carbon credits earned in the Kyoto regime but not yet sold, what constitutes double-counting, and transparency mechanisms to be put in place.

Discuss the major points of disagreements.

Suggest way forward.

Conclusion:

Conclude that Carbon markets are not compulsorily essential to the implementation of Paris Agreement. But with the world doing far less than what is required to prevent catastrophic impacts of climate change; the markets can be an important tool to close the action gap

Introduction:

Carbon markets, which allow for buying and selling of carbon emissions with the objective of reducing global emissions, is an unfinished agenda from last year's meeting in Katowice, Poland. Carbon markets also existed under the Kyoto Protocol, which is being replaced by the Paris Agreement next year. The market mechanisms being proposed under the Paris Agreement are conceptually not very different, but are supposed to have more effective checks and balances, and monitoring and verification processes.

Body:

Carbon market mechanism and its necessity:

- Carbon Markets can potentially deliver emissions reductions over and above what countries are doing on their own.
- Under the Paris Agreement, every country has to take action to fight climate change. These actions need not necessarily be in the form of reduction in greenhouse gas emissions, which can constrain economic growth.
- Only the developed countries have included absolute emission cuts in their action plans. Yet, there is scope for absolute emissions reductions in developing countries too.
- Markets can potentially deliver emissions reductions over and above what countries are doing on their own.
- For example, technology upgradation and emission reduction of a brick kiln in India can be achieved in two ways:
 - A developed country which is unable to meet its reduction target can provide money or technology to the brick kiln in India, and thus claim the reduction of emission as its own.
 - Alternatively, the kiln can make the investment, and then offer on sale the emission reduction, called **carbon credits**. Another party, struggling to meet its own targets, can buy these credits and show these as their own.

Carbon markets provisions under Paris agreement:



- The provisions relating to setting up a new carbon market are described in Article 6 of the Paris Agreement.
- Article 6.2 enables bilateral arrangements for transfer of emissions reductions.
- Article 6.4 talks about a wider carbon market in which reductions can be bought and sold by anyone.
- Article 6.8 provides for making 'non-market approaches' available to countries to achieve targets.

Contentious points of Carbon Markets:

- The main tussle is over two or three broad issues — what happens to carbon credits earned in the Kyoto regime but not yet sold, what constitutes double-counting, and transparency mechanisms to be put in place.
- Developing countries have several million unsold CERs (certified emission reductions), each referring to one tonne of carbon dioxide equivalent emission reduced, from the Kyoto regime. Under the Kyoto Protocol, only developed countries had the obligation to reduce emissions. In the initial phase, some of these were interested in buying CERs from projects in India or China, which were not obliged to make reductions.
- In the last few years, several countries walked out of the Kyoto Protocol, and those that remained did not feel compelled to full their targets. The second commitment period of the Kyoto Protocol (2012-20) never came into force. As the demand for CERs crashed, countries like India were left with projects generating CERs with no one to buy them.
- India has about 750 million unsold CERs and, along with other similarly robust; they want the new mechanism to start with a clean slate.
- The second issue is that of double counting, or corresponding adjustment. The new mechanism envisages carbon credits as commodities that can be traded multiple times among countries or private parties. It is important to ensure that in this process, credits are not counted at more than one place; whoever sells carbon credits should not simultaneously count these as emissions it has reduced.
- The developing countries argue that the country that reduced emissions should be able to show it even after selling the credits, and that adjustments should be made only for subsequent transfers, if any.

Way forward:

- Carbon markets are not essential to the implementation of Paris Agreement.
- However, the carbon market system must evolve towards something better than offsetting. It should aim to accelerate the transition, rather than offering a cheap way out and replacing somebody's efforts with those of someone else.
- The world should move away from offsetting mechanisms and towards financing climate projects that truly drive the zero-carbon transition.
- One way of achieving this is to use existing carbon markets to disburse climate finance by buying carbon credits and cancelling them, without claiming the actual emission reductions.



Provided the lack of effectiveness of the current global climate policy the alternative strategy of the low carbon social development model adopted by India and China needs more consideration. Examine.(250 words)

The Hindu

Why this question:

The question is in the context of United Nations Framework Convention on Climate Change's 25th Conference of Parties that was held in Madrid recently.

Key demand of the question:

The article highlights the alarming concerns related to the current global climate policy and demands an analysis of what needs to be done to address the same.

Directive:

Examine – When asked to 'Examine', we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

In short highlight the key facts from the article.

Body:

Explain the key factors responsible for the failure of the current global climate policy – the world's major emitter, the US has rejected multilateralism, premised on burden-sharing and has pulled out of the Paris climate deal. The planned emission cuts fall short of what needs to be done to contain global warming.

The existing Nationally Determined Contributions filed under the Paris Agreement fall short. There is a yawning gap between planned emissions cuts, and what needs to be done by 2030 to contain global temperature rise at 1.5°C etc.

Present the case of India and China and highlight some specific efforts in this direction by the two.

Conclusion:

Conclude that by 2040 more than half of the global wealth is again going to be in Asia; the low carbon social development model adopted by India and China will become the world system, ensuring global sustainability. The alternative strategies led by India and China should now move centre stage and replace the ineffective Climate Treaty.

Introduction:

The failure to limit the increasing levels of concentration of greenhouse gases despite the annual Climate Summits raises questions on the efficacy of the current global climate policy. The current global climate policy problem is that the Climate Treaty considers symptoms (emissions of greenhouse gases), rather than the causes (use of natural resources). India, which is responsible for just 3% of cumulative emissions, is the most carbon efficient and sustainable major economy.

Body:

Failures of the current global climate policy:

- USA, the world's major emitter, has rejected multilateralism, premised on burden-sharing and has pulled out of the Paris climate deal.
- The planned emission cuts fall short of what needs to be done to contain global warming.
- The existing Nationally Determined Contributions (NDC) filed under the Paris Agreement fall short.



- There is a huge gap between planned emissions cuts, and what needs to be done by 2030 to contain global temperature rise at 1.5°C.
- The European Union's ambition of 'net' zero emissions by 2050 neglects the needed societal change by ignoring the embedded carbon in its imports which accounts for a third of their emissions of carbon dioxide.

Varying resource utilization patterns:

- Excessive resource use by the West which constitutes 20% of the world's population consumes half of the global material use and is the major cause of climate change.
- Asia with half the world's population is responsible for less than half of the material use.
- The contribution of the United States to resource use or cumulative emissions of carbon dioxide peaked at 40% in 1950, declined to 26% and is likely to remain at this level.
- By 2015, the global population had doubled when emissions in China began to stabilise and accounted for 12% of the total cumulative emissions. Asia and Africa will peak at per-capita levels that are a third of those of the West.
- The developed world by failing to acknowledge its historical contribution to the issue of climate change is shifting the burden of controlling climate change onto developing countries.
- National natural resource-use accelerated in two distinct phases with very different origins and impacts.
- In North America and Europe, resource use accelerated after 1950, and not with industrial resource use from 1850. By 1970, three-quarters of their population had moved to cities, characterized as "unprecedented prosperity", leading to the trajectory towards climate change.

Model adopted by India and China:

- India and China, civilizational states with a population nearly eight times that of the U.S., have re-defined progress.
- Measures for global sustainability should draw lessons from India and China.
- India, which is responsible for just 3% of cumulative emissions, is the most carbon-efficient and sustainable major economy.
- The pathway adopted by China can now be compared and contrasted with the West, as it has come up to that level of urbanization and well-being.
- In China, electricity consumption per capita is a third of the European Union (EU) and a sixth of the U.S. Residential energy consumption has increased at a rate less than half the increase in GDP, and corresponds to the increase in urban population, showing a limited increase with more disposable household income.
- China also has less than a sixth of the number of cars with respect to population, than the EU, while the U.S. has nearly two times that number. In China, nearly 40% of the distance travelled is by public transport, which is two times that of the EU. While the number of cars in China is projected to double by 2040, half the new cars are expected to be electric vehicles.



- China has the world's most extensive electric high-speed rail system. In Beijing, three-quarters of public transport buses are already electric. Asian household savings as a per cent of GDP are two times that of the U.S.
- India and China are global leaders in sustainability not only because of their low per-capita resource use but also because of their commitment to peak oil consumption around 2035 as they adopt electric vehicles supported by solar and wind renewable energy.
- By 2035, India and China are expected to have half the global renewable capacity and electric vehicles.

Conclusion:

Transport emissions are the fastest growing emissions worldwide, projected to become half of global emissions. India and China are global leaders in sustainability not only because of their low per-capita resource use but also because of their contribution to peak oil around 2035 as they adopt electric vehicles supported by solar and wind renewable energy. The low carbon social development model adopted by India and China will become the world system, ensuring global sustainability.

Role of external state and non-state actors in creating challenges to internal security.

While radicalisation is the primary problem, lone-wolf terror attacks across globe points to security, intelligence and systemic failures. Examine. Suggest how India should prepare itself to avoid such attacks.

The Hindu
IDSA

Why this question:

The recent knife attack near London Bridge that killed two and injured three others is yet another reminder of the threat lone-wolf assaults pose to public security.

Key demand of the question:

One has to talk about the various reasons for increasing lone-wolf terror attacks and the measures needed to curb such attacks.

Directive:

Examine – When asked to 'Examine', we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Briefly narrate the lone-wolf attack in London. Also explain about the instances in India and world in the past.

Body:

Explain that a lone wolf attack is undertaken by a very small group or an individual in support of a larger cause, but without the overall supervision or support of a terrorist organisation.

Discuss the causes for rising lone-wolf terror attacks.

Radicalization of the youth- individuals who are influenced by either perceptions of injustice and persecution.

Lax gun controls in some places.

Failure of the intelligence of State

Other reasons.



Give measures to tackle such incidents in India like addressing the systemic issues — making policing more efficient; strengthening the intelligence network; state agencies need to work with civil society groups as well as community leaders and have deradicalisation programmes etc.

Conclusion:

Conclude about how there is no one-stop solution to terrorism and the need for global co-operation in fighting it.

Introduction:

The knife attack on recently near London Bridge that killed two and injured three others is yet another reminder of the threat lone-wolf assaults poses to public security.

A lone wolf, lone-wolf terrorist, or lone actor, is someone who prepares and commits violent acts alone, outside of any command structure and without material assistance from any group. He or she may be influenced or motivated by the ideology and beliefs of an external group and may act in support of such a group. In its original sense, a “lone wolf” is an animal or person that generally lives or spends time alone instead of with a group.

Challenges to Undertaking Lone Wolf Attacks

- Unlike in the US where sophisticated weapons can be easily bought by ordinary citizens, gaining access to such weaponry in India is difficult as is the ability to obtain licenses.
- Indians have not displayed the psychological willingness to undertake high risk attacks. There have not been any fidayeen attacks undertaken by Indians in the country. Such attacks in the past have either been undertaken by Tamil guerrillas from Sri Lanka or by Pakistan-sponsored foreign terrorists in Jammu and Kashmir.
- The only major indigenous terrorist group which has operated on a pan-Indian scale is the Indian Mujahideen (IM). There is a possibility that radicals associated with this group might attempt lone wolf strikes especially given that one of IM’s breakaway factions has joined the IS.
- Over a period of time, the deployment of private security at high value targets like malls, hotels and schools has been upgraded, which acts as a deterrent to an individual aiming to target them.
- The absence of past examples of lone wolf attacks in India inculcates the fear of the unknown in the minds of potential volunteers.
- The areas most affected by communal tensions and differences between religious groups can best be identified on the basis of the history of riots. States that have witnessed the maximum number of cases of communal riots include Uttar Pradesh, Madhya Pradesh, Maharashtra, Gujarat and Karnataka.

India’s Vulnerabilities:

- Past cases of terrorist attacks suggest that the reactions of the local police remain inadequate. While this was clearly apparent during 26/11, which was a well-orchestrated attack sponsored by Pakistan, responses to subsequent terror attacks do not indicate police capacities that are necessary for undertaking clinical operations to limit potential damage.



- Heavy concentration of people in public areas offers a large number of potential targets. While some installations have utilised the limited protection offered by private security measures, a large number of public places continue to remain vulnerable.
- A fast growing population, especially youth with access to mass media and social media, opens limitless avenues of unrestrained radical propaganda. This increases the possibility of subversion, given the unverified yet powerful platforms of messaging that promise liberation from everyday frustrations of the youth at their places of work, in society and across borders in conflict zones.
- While the popular discourse seems to suggest an increasing level of intolerance, the reality is quite different. For instance, the number of incidents of communal violence increased only marginally from 644 in 2014 to 650 in 2015 (based on data till October, 2015).

How India should prepare itself to avoid such attacks.

- The approach must follow the sequence of awareness of the contagion, detection of potential and existing recruits and finally remedial action.
- The recent attacks in France and the large scale recruitment to IS has contributed to raising awareness regarding radicalization the world over. However, there is a need to focus attention on potential target groups through monitoring and infiltration of social media sites that are the principle source of radical propaganda.
- Big data analytics must be used to discern the level of radicalization of potential recruits, their networks and sources of information, funding and leadership in order to help unravel the roots of radicalization.
- The police and intelligence services are neither trained nor equipped to handle the vital aspect of rolling back radicalization in society. Helplines should be created and manned by professional counsellors and psychologists who can help reverse the process as part of the efforts of Non-Governmental Organizations (NGOs) supported by the state.
- While the above is a suitable course of action for potential and raw recruits, the hardened ideologues must be prosecuted under the counter terrorism laws of the state.
- The example of the IS suggests that their legal advisors carefully exploited existing loopholes and gaps in legal mechanisms to continue with propagation of radical ideologies in Europe. This raises the need for regular revision and tightening of laws to ensure that the same cannot be attempted in India.
- The formation of National Security Guard regional hubs in the aftermath of 26/11 is a welcome step to neutralize future terrorist strikes. However, recent attacks indicate that the reaction time to a terror strike is likely to be of the utmost essence in minimizing casualties. There is, therefore, a need for specialized police teams to be trained and organized in every state to act as first-responders.
- The nature of threat that groups like the IS represent is transnational in nature. Therefore, the momentum created in the aftermath of the Paris attacks must be carried forward to strengthen the “coalition of willing” to improve intelligence sharing mechanisms, reduce time for processing information requests, strengthen countering the finance of terrorism measures, and facilitate the extradition of hate mongers from their chosen place of



immigration. The example of Sikh and Kashmiri groups in Europe and Canada is a case in point.

Conclusion:

Attacks by home grown terrorists is a threat that has proved its nefariousness in the recent past. This is likely to be expanded through volunteers encouraged to undertake lone wolf attacks. India remains an important target for groups like the IS, which visualize the country's democratic, secular and open social fabric as a threat to their concept of an Islamic Caliphate. It is therefore important to undertake suitable proactive measures to limit the potential damage that can be caused by such attacks.

Challenges to internal security through communication networks, role of media and social networking sites in internal security challenges, basics of cyber security; money-laundering and its prevention

Critically analyse the provisions of Personal Data Protection Bill which seeks to update the currently non-existent standards for privacy and consent.

[Deccan Herald](#)

[Livemint](#)

[The Economic Times](#)

Why this question:

The government has listed the Personal Data Protection Bill in Parliament for the winter session. The Union Cabinet has approved the Bill and it is likely to be introduced for discussion before the on-going winter session of Parliament. It is essential to discuss the bill and its effect on freedom of individuals. Finally we need to provide a fair and balanced opinion on the provisions of the draft Bill and discuss the way forward.

Directive word

Critically examine – When you are asked to examine, you have to probe deeper into the topic, get into details, and find out the causes or implications if any. When 'critically' is suffixed or prefixed to a directive, all you need to do is look at the good and bad of something and give a fair judgement.

Structure of the answer

Introduction – Give a background of the data protection Bill and talk about the challenges emanating for RTI Act from all corners

Body

Highlight the provisions of the data protection bill

One of the most important aspects of the Bill is the setting up of the data protection authority (DPA). the bill proposes social media platforms to create a mechanism so that for "every user who registers their service from India or uses their service from India, a voluntary verifiable account mechanism has to be made

And so on.

Highlight the challenges posed by the bill.

The Bill calls for privacy by design, but ensuring accountability will be difficult since most design decisions are opaque

While the draft Bill sets up broad principles for privacy, a huge chunk of the work has been left for the DPA to carry forward.

in the interest of national security, certain agencies can have access to personal data for any investigation pertaining to offences.

The Personal Data Protection Bill only lists a set of broad principles that lay down the contours of privacy in the country. That in itself offers neither a clear road map for governance nor any of the



details that data principals, and fiduciaries alike, would need in order to understand their rights and obligations

And so on.

Provide measures to tackle the challenges posed.

Conclusion

Give a fair and balanced conclusion and discuss the way forward.

Introduction:

The Union cabinet recently gave its approval to the Personal Data Protection Bill that seeks to lay down a legal framework to preserve the sanctity of “consent” in data sharing and penalize those breaching privacy norms. The Bill will update the currently non-existent standards for privacy and consent. The Bill is based on the previous draft version prepared by a committee headed by retired **Justice B N Srikrishna**.

Body:

Decoding the data protection bill

WHAT IT MEANS FOR CONSUMERS

- **DATA** can be processed or shared by any entity only after consent.
- **SAFEGUARDS**, including penalties, introduced to prevent misuse of personal data.
- **ALL** data to be categorized under three heads—general, sensitive and critical.

THE GOVERNMENT & REGULATORY ROLE

- **GOVT** will have the power to obtain any user's non-personal data from companies.
- **THE** bill mandates that all financial and critical data has to be stored in India.
- **SENSITIVE** data has to be stored in India but can be processed outside with consent.

WHAT COMPANIES HAVE TO DO

- **SOCIAL** media firms to formulate a voluntary verification process for users.
- **SHARING** data without consent will entail a fine of ₹15 crore or 4% of global turnover.
- **DATA** breach or inaction will entail a fine of ₹5 crore or 2% of global turnover.

Source: Mint research

Proposals of the PDP Bill:

- The Bill calls for the creation of an **independent regulator Data Protection Authority**, which will oversee assessments and audits and definition making.
- Each company will have a **Data Protection Officer (DPO)** who will liaison with the DPA for auditing, grievance redressal, recording maintenance and more.
- The Bill trifurcates data as follows:
 - **Personal data:** Data from which an individual can be identified like name, address etc..
 - **Sensitive personal data (SPD):** Some types of personal data like as financial, health, sexual orientation, biometric, genetic, transgender status, caste, religious belief, and more.



- **Critical personal data:** Anything that the government at any time can deem critical, such as military or national security data.
- The Bill **removes the requirement of data mirroring** (in case of personal data). Only individual consent for data transfer abroad is required.
- The Bill requires **sensitive personal data** to be stored only in India. It can be processed abroad only under certain conditions including approval of a Data Protection Agency (DPA).
- **Critical personal data** must be stored and processed in India.
- The Bill mandates fiduciaries to provide the government any **non-personal data** when demanded. It refers to anonymised data, such as traffic patterns or demographic data.
- The previous draft did not apply to this type of data, which many companies use to fund their business model.
- The Bill also requires **social media companies**, which are deemed **significant data fiduciaries** based on factors such as volume and sensitivity of data, to develop their own user verification mechanism.
- This intends to decrease the anonymity of users and prevent trolling.
- The Bill includes exemptions for processing data without an individual's consent for "reasonable purposes", including security of the state, detection of any unlawful activity or fraud, whistleblowing, medical emergencies, credit scoring, operation of search engines and processing of publicly available data.
- The Bill proposes "**Purpose limitation**" and "**Collection limitation**" clause, which limit the collection of data to what is needed for "clear, specific, and lawful" purposes.
- It also grants individuals the right to data portability and the ability to access and transfer one's own data. It also grants individuals the right to data portability, and the ability to access and transfer one's own data.
- It legislates on **the right to be forgotten**. With historical roots in European Union law, General Data Protection Regulation (GDPR), this right allows an individual to remove consent for data collection and disclosure.
- The Bill stated the **penalties** as: Rs 5 crore or 2 percent of worldwide turnover for minor violations and Rs 15 crore or 4 percent of total worldwide turnover for more serious violations.
- Also, the company's executive-in-charge can also face jail terms of up to three years.

Challenges posed:

- A common argument from government officials has been that data localisation will help law-enforcement access data for investigations and enforcement.
- Critical data will be defined by the government from time to time and has to be stored and processed in India
- National security or reasonable purposes are an open-ended terms, this may lead to intrusion of state into the private lives of citizens.



- Technology giants like Facebook and Google have criticised protectionist policy on data protection.
- They fear that the domino effect of protectionist policy will lead to other countries following suit.
- Protectionist regime suppress the values of a globalised, competitive internet marketplace, where costs and speeds determine information flows rather than nationalistic borders.
- Also, it may backfire on India's own young startups that are attempting global growth, or on larger firms that process foreign data in India.
- Civil society groups have criticised the open-ended exceptions given to the government in the Bill, allowing for surveillance.
- Moreover, some lawyers contend that security and government access are not achieved by localisation.
- There have only been limited studies on privacy in the Indian context but the most existing literature points to the collectivist nature of society to explain the low levels of privacy consciousness.
- While awareness is growing, if people display a high level of apathy towards ensuring the protection of their personal data it may push data fiduciaries down the path of non-compliance.

Way forward:

- The government should table the Bill at the earliest to allow sufficient time for discussing the finer aspects of the Bill on the floor of the house.
- The number of questions posed to MEITY on the topic of privacy and data protection indicates a high degree of interest in Parliament on the subject.
- The government should also endeavour to remain as transparent as possible when framing the remaining provisions.
- Simultaneously, society should not slide into complacency after the passage of the Bill.
- Instead, it must continue to stay engaged to ensure that we have a strong data protection regime that succeeds in safeguarding Indians' fundamental right to privacy.

India is widely considered to be a world leader in cutting off access to the Net. Critically discuss the issues and concerns raised against pre-emptive internet shutdowns as a security measure. (250 words)

Indian Express

Why this question:

The Software Freedom Law Center (SFLC), the global tracker for Internet shutdowns, was inundated with messages of shutdowns across the country — a frequently recurring phenomenon in India over the past several years. The world's fastest growing Internet market is also the global leader by far in cutting off access to small and large sections of its population.

Key demand of the question

The question expects us to explain the concerns caused due to shut down of internet by the Government under the garb of maintenance of Internal Security. Further, explain the concerns



faced

Directive word

Critically discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments. When ‘critically’ is suffixed or prefixed to a directive, all you need to do is look at the good and bad of something and give a fair judgement.

Structure of the answer

Introduction:

Provide a brief outlook on the internet shutdowns in India recently. Discuss about the laws and the provisions under which it can be applied.

Body:

Discuss the reasons for which the internet shutdown is clamped by authorities

- *To stop the unrest or communal violence from perpetuating*
- *To deter the influence of non-state actors and miscreants in shaping the future course of unrest.*
- *And so on.*

However, the clampdown of internet has other effects too like:

- *curtails the democratic principles and implicitly the fundamental rights of freedom and liberty*
- *economic cost to shutdowns is immense: Over the past five years, some 16,000 hours of Internet shutdowns cost the economy a little over \$3 billion*
- *and so on.*

Provide the possible measures to tackle this.

Conclusion:

Give a balanced way forward.

Introduction:

The Software Freedom Law Center (SFLC), the global tracker for Internet shutdowns, was inundated with messages of shutdowns across the country — a frequently recurring phenomenon in India over the past several years. Recently as protests over a controversial citizenship law rage across India, authorities resorted to shutting down the internet in cities where demonstrators flooded the streets. **A country that is now seen as the internet shutdown capital of the world.**

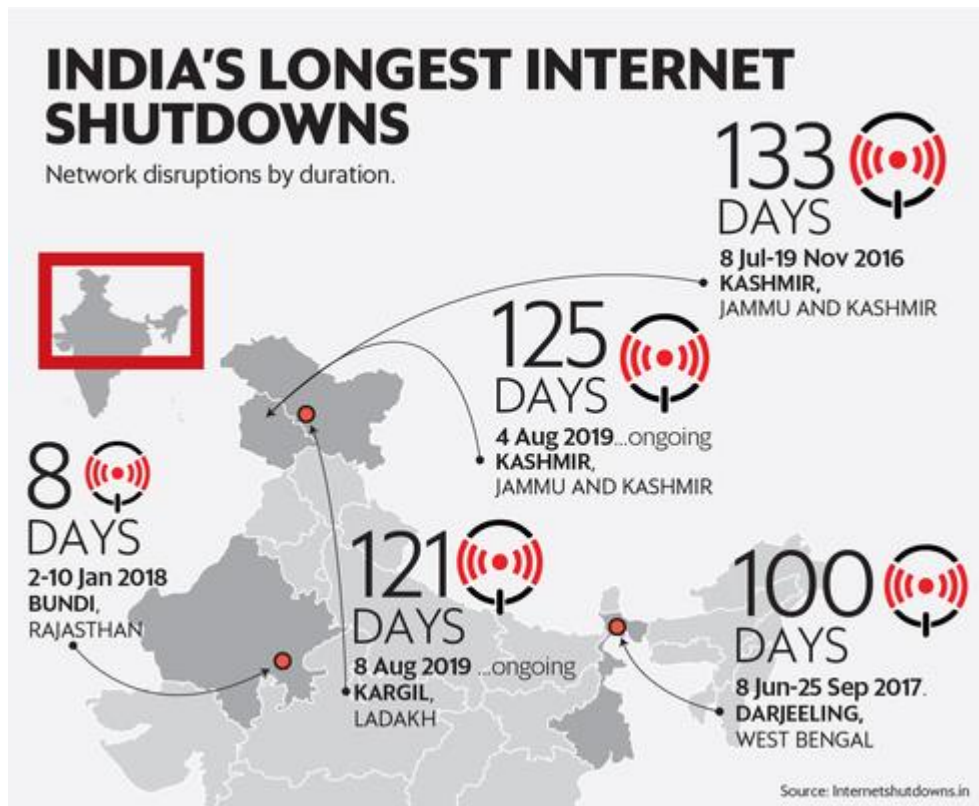
Body:

Recent internet shutdowns in India:

- **136 days and counting:** Internet services were suspended on 4 August in Jammu and Kashmir this year
- **133 days:** An internet shutdown in Indian-administered Kashmir which lasted from 8 July to 19 November in 2016
- **99 days:** Authorities shut off the internet in India’s West Bengal state from 18 June to 25 September in 2017
- Most internet shutdowns in India are ordered under article 144 of the Indian Penal Code, which empowers local authorities to issue prohibitory orders to deal with situations of potential unrest. (Software Freedom Law Center)
- The current sweeping shutdowns come after access to the Internet was cut off as a preventive measure in several states last month ahead of the Supreme Court’s Ayodhya verdict, when there were apprehensions of tension and violence



- The Internet was suspended around the death anniversary of the slain Hizbul Mujahideen commander Burhan Wani, and on Independence Day 2017, Republic Day 2016, and Eid 2015.



Type of Shutdown:

Of the 278 Internet shutdowns recorded between January 2012 and January 2019, 160 were observed to be preventive measures i.e. restrictions imposed in anticipation of law and order breakdowns, whereas 118 shutdowns were reactive in nature i.e. imposed in order to contain on-going law and order breakdowns.

Nature of Shutdown:

Of the 278 reported incidents, 224 were targeted at mobile Internet services alone (3 in 2012, 5 shutdowns each in 2013 & 2014, 8 in 2015 and 20 in 2016, 51 in 2017, 126 in 2018 and 6 till January 2019), 19 targeted both mobile and fixed-line Internet services (4 each in 2015 and 2016, 9 in 2017, and 4 in 2018), while only 2 shutdowns targeting fixed-line services alone were recorded during the period of study.

Issues and concerns involved:

- Shutdown is a violation of fundamental rights of Freedom of speech and expression.
- Internet shutdowns can erode democratic institutions and values. For example, if citizens are using the internet to mobilize themselves, then shutting down the internet is not different from suppressing dissent.
- Does a democratic government have the right to shut down the internet? Is a basic question regarding internet shutdown. After the Gujarat government suspended internet services for almost a week during the Patidar protest in 2015, the matter was taken to the courts.



- Internet shutdowns are not particularly effective—people always find other ways to communicate, and studies have shown that such censorship in times of political unrest actually leads to more violent uprisings as the information void fuels uncertainty and causes panic.
- The Internet is pretty much a basic human right, even if not legally defined as such, for most parts of the world — without access to the virtual world, a very large number of vital human activities simply stop.
- In countries that have “medium” Internet penetration — 49% to 79% of the population — a shutdown could dent daily economic activity by \$6.6 million per 10 million people, according to an analysis by Deloitte, quoted in The New York Times article.
- Between July 2015 to June 2016, Internet shutdowns caused global losses of more than \$2.4 billion, according to an analysis by The Brookings Institution quoted in the same article.
- Over the past five years, some 16,000 hours of Internet shutdowns cost the economy a little over \$3 billion, according to estimates in a report by the Indian Council for Research on International Economic Relations (ICRIER).
- Cutting off communication in itself is an enormous public safety risk. Citizens are left without access to information about emergency services like the volunteer-built solutions like chennairains.org.
- Because internet shutdowns affect every section of society – especially those who need it the most. And these restrictions, targeting the ‘common people’, are becoming increasingly ‘common’.

Way forward:

- Perhaps the solution can be found in renegotiating our law enforcement approaches in keeping with the changing times and technologies.
- Police and government agencies could increase their presence online so that they can actively fight back against rumour-mongering.
- Empowering local law enforcement so they can tackle tensions without shutting the Internet down.
- The solution to internet misuse is to build stronger laws for data privacy and protection. Stopping access to internet services altogether is definitely not the solution.
- Social media can be the solution, not just the problem: Particularly in the Kaveri River water dispute, the Bangalore police used texts, Twitter, and Facebook to send out information on emergency contacts to reassure people.

On a resolution on **“The promotion, protection and enjoyment of human rights on the Internet”**, the UN Human Rights Council, guided by the Charter of the UN, said it was **“deeply concerned by all human rights violations and abuses committed against persons for exercising their human rights and fundamental freedoms on the Internet, and by the impunity for these violations and abuses”, and “also by measures aiming to or that intentionally prevent or disrupt access to or dissemination of information online, in violation of international human rights law”**.

Conclusion:



Shutdowns, which are a negative expression of the idea of digital sovereignty, are not just for undemocratic societies any more. An internet shutdown compromises our democratic freedoms and should only be allowed in the rarest cases, rather than as a first response. Also an independent body could be a substitute for legislation which impose shutdown arbitrarily and that it also be empowered to review the necessity of shutdowns in the first place.

In the twentieth century, India saw an impetus in Information Technology (IT) and an enormous growth in e-commerce. Amidst such a scenario discuss the possible cyber security threats India is facing today. Also, comment upon India's preparedness to avert such cyber security threats. (250 words)

Reference: Indian Express

Why this question:

While the number of cybercrimes in the city is on the rise, incidents of people being defrauded over promises of winning an online lottery, or availing services of a dating website, have become a cause for concern.

Key demand of the question:

Explain the possible concerns of cyber security threats posing the country, discuss what needs to be done to handle them and specifically provide for a detailed discussion on solutions to address.

Directive:

Comment– here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

Explain some recent cyber breaches to substantiate the question.

Body:

Explain why cyber security breaches are dangerous, what are the key concerns.

Discuss that in twentieth century, India saw an impetus in Information Technology (IT) and an enormous growth in e-commerce. Both these sectors ride on and reside in cyberspace involving electronic transactions, software, services, devices and networks which are highly susceptible to cyber-crimes. Hence to ensure its safety, cyber-security has become one of the most compelling priorities for the country.

Discuss the need for cyber security.

Explain the challenges; discuss the efforts taken by the government to tackle the security issues on this front.

Conclusion:

Conclude with solutions to address the issue.

Introduction:

Cybercrime is a criminal action that encompasses mobile phones, laptop, network, and computer. It is a threat to country's external and internal security and monetary status. Crimes committed against publics with an illicit intention to cause physical or psychological harm, or loss to the victim directly or indirectly, by means of contemporary telecommunication networks such as social media network, the Internet and mobile phones. As per numbers obtained from Pune City Police, the Cyber Crime Cell has received 37 complaints of online lottery frauds and 32 on online dating frauds so far this year.

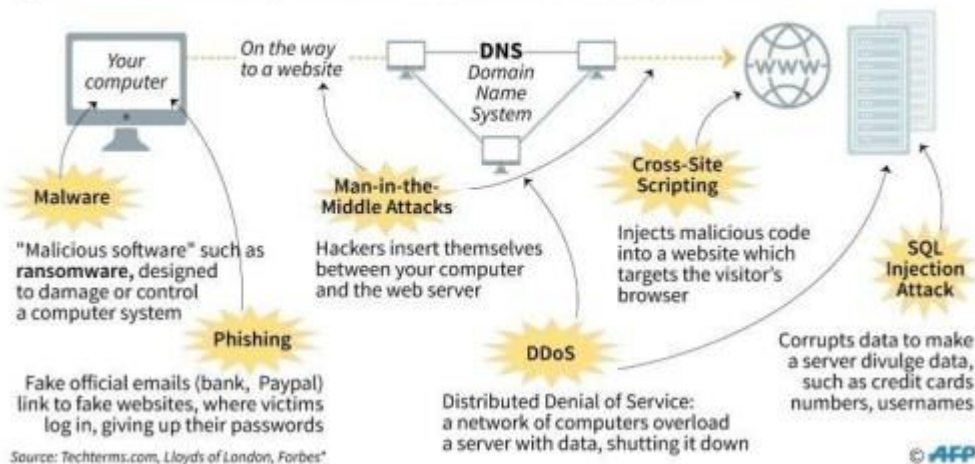
Body:



Types of cyber security threats: Cyber Security is protecting cyber space including critical information infrastructure from attack, damage, misuse and economic espionage.

The different types of cyber attacks

Cyber crime worldwide cost \$400 billion in 2015 and is forecast to reach \$2 trillion in 2019*



Cyber frauds and their modus operandi:

- online fraudsters manage to collect a large amount of information about their potential victims.
- A huge amount of data, like phone numbers and email addresses, is collected in different ways.
- For example, asking someone to fill a form for some lottery prize in a mall or at a petrol pump.
- This bulk data is sold to cyber fraudsters, who then contact these people by making phone calls, sending SMSs and emails etc about fraudulent schemes like online lotteries.
- Fraudsters often ask their targets to transfer money into different bank accounts as various 'charges' for receiving the lottery prize, availing dating services and other fake reasons.
- cyber criminals lure people from poor backgrounds to open such accounts in different banks, and then keep their ATM cards.
- After money is transferred by the victims to the 'beneficiary' bank accounts, fraudsters withdraw it immediately. Some part of the money is given to 'beneficiary' account holders.

India's attempts to tackle these issues:

Information Technology Act, 2000

- The act regulates use of computers, computer systems, computer networks and also data and information in electronic format.
- The act lists down among other things, following as offences:
- Tampering with computer source documents.
- Hacking with computer system



- Act of cyber terrorism i.e. accessing a protected system with the intention of threatening the unity, integrity, sovereignty or security of country.
- Cheating using computer resource etc.

Strategies under National Cyber Policy, 2013

- Creating a secure cyber ecosystem.
- Creating mechanisms for security threats and responses to the same through national systems and processes.
- National Computer Emergency Response Team (CERT-in) functions as the nodal agency for coordination of all cyber security efforts, emergency responses, and crisis management.
- Securing e-governance by implementing global best practices, and wider use of Public Key Infrastructure.
- Protection and resilience of critical information infrastructure with the National Critical Information Infrastructure Protection Centre (NCIIPC) operating as the nodal agency.
- NCIIPC has been created under Information Technology Act, 2000 to secure India's critical information infrastructure. It is based in New Delhi.
- Promoting cutting edge research and development of cyber security technology.
- Human Resource Development through education and training programs to build capacity.

Cyber Surakshit Bharat Initiative: It was launched in 2018 with an aim to spread awareness about cybercrime and building capacity for safety measures for Chief Information Security Officers (CISOs) and frontline IT staff across all government departments.

National Cyber Security Coordination Centre (NCCC): In 2017, the NCCC was developed. Its mandate is to scan internet traffic and communication metadata (which are little snippets of information hidden inside each communication) coming into the country to detect real-time cyber threats.

Cyber Swachhata Kendra: In 2017, this platform was introduced for internet users to clean their computers and devices by wiping out viruses and malware.

Training of 1.14 Lakh persons through 52 institutions under the Information Security Education and Awareness Project (ISEA) – a project to raise awareness and to provide research, education and training in the field of Information Security.

International cooperation: Looking forward to becoming a secure cyber ecosystem, India has joined hands with several developed countries like the United States, Singapore, Japan, etc. These agreements will help India to challenge even more sophisticated cyber threats.

Preventive measures:

- citizens should avoid submitting details like bank account numbers, ATM card numbers and other information with strangers or any unknown person over the phone.
- Suspicious online offers and messages, or emails sent by unknown persons, should be ignored.



- Citizens should report to the police any suspicious contact numbers and emails that offer fraudulent schemes.
- No money transfers should be made to any bank account without confirmation about the scheme offered online by any website.

Way forward:

- Real-time intelligence is required for preventing and containing cyber-attacks.
- Periodical 'Backup of Data' is a solution to ransomware.
- Using Artificial Intelligence (AI) for predicting and accurately identifying attacks.
- Using the knowledge gained from actual attacks that have already taken place in building effective and pragmatic defence.
- Increased awareness about cyber threats for which digital literacy is required first.
- India needs to secure its computing environment and IoT with current tools, patches, updates and best known methods in a timely manner.
- The need of the hour for Indian government is to develop core skills in cyber security, data integrity and data security fields while also setting stringent cyber security standards to protect banks and financial institutions.

Various Security forces and agencies and their mandate.

What is Blue Water Force? Discuss the significance for India as she aspires to be a net security provider in the Indian Ocean region.

The Indian Express

Why this question:

Mankind's progress has had unintended consequences on the environment. These include climate change, extreme weather events and the reduced availability of potable water.

Key demand of the question:

One has to find the reasons for reduced availability of potable water due to human actions, climate change and extreme weather events.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Define what is blue water force and explain the context of our defence minister declaring it.

Body:

Discuss what is blue water navy.

Discuss the need and significance to Develop 'Blue Water' Capabilities for India?

What are the challenges faced in the quest?

How can this be overcome?

Conclusion:

Conclude with a way forward.

**Introduction:**

On December 4, Navy Day, the office of Defense Minister stated that “Indian Navy is the Formidable Blue Water Force.” **Blue Water Navy** is one that has the capacity to project itself over a much bigger maritime area than its maritime borders. Simply put, it is a Navy that can go into the vast, deep oceans of the world. However, while most navies have the capacity to send ships into the deep oceans, a Blue Water Force is able to carry out operations far from its borders, without being required to return to its home port to refuel or re-stock.

Body:**How does a nation become a part of this?**

- A blue-water navy implies force protection from sub-surface, surface and airborne threats and a sustainable logistic reach, allowing a persistent presence at the range.
- A hallmark of a true blue-water navy is the ability to conduct a replenishment at sea (RAS), i.e. transfer of fuel and ammunition underwater and the commissioning of underway replenishment ships is a definite sign of a navy’s blue-water ambitions.
- These are some of the attributes to be maintained by the country to be called as a blue water navy.

Indian Navy – the quest to be a blue water navy:

- Indian Navy has the designation of “leading power projection capability” in the region” and is, therefore, a blue water navy.
- India initially outlined its intentions of developing blue-water capabilities under the 2007 Maritime Capabilities Perspective Plan, with the navy’s priority being the projection of “power in India’s area of strategic interest”, the Indian Ocean Region.
- Since 2007 the navy has increased its presence in the Persian Gulf and the Horn of Africa to the Strait of Malacca, and routinely conducts anti-piracy operations and partnership building with other navies in the region.
- It also conducts routine two to three-month-long deployments in the South and East China seas as well as the western Mediterranean simultaneously. The navy has a listening post in Madagascar.
- All these power projection capabilities make Indian navy a blue water navy.

Significance of Blue Water Navy for India:

- While it is evident that Blue Water navies belong to the most powerful nations, there is no one internationally agreed upon definition.
- Owning one or more aircraft carriers is sometimes seen as a marker.
- The ability to undertake distant operations distinguishes a blue-water navy from a brown-water force. It requires strong integral capacity, including logistics, surveillance, networked operations, etc., and enabling capability, including equipment design, training, doctrine and organization.



- A blue-water navy is a maritime force capable of operating in the deep waters of the open oceans.
- The Most navies agree that a blue-water navy is capable of prolonged and sustained operations across the open oceans, and has a capacity to project “credible power” in the distant seas.

Challenges:

- The country has an aging naval fleet and replacement is often fraught with major delays. For instance, the INS Vikramaditya was delayed by five years, and an Indian Comptroller and Auditor General report criticized the navy’s operational readiness, given 74 percent of its refits between 2005 and 2010 were completed with a total delay of more than 23 years.
- The Indian Navy is currently weak on submarine capabilities. Most of India’s defense equipment is imported (mostly from Russia) and the country needs to develop its indigenous manufacturing capabilities.
- The navy’s allocation in the defense budget would force it to make crucial tradeoffs between developing one capability versus the other. Added to this is the strategic disconnect between the defense forces and the Ministry of Defense.
- Cost effective and timely modernization would be critical to fully realize India’s blue water dreams.
- India has the allocated funds, locational advantage, time and the opportunity to form strategic alliances on its side. But it needs to avoid getting this agenda mired in bureaucracy, inefficiency and a lack of strategic focus.
- And as acknowledged by its policy thinkers, India does have a window of opportunity to forge ahead on building its naval capabilities while China is still preoccupied with the Pacific Ocean.

Conclusion:

Just like the sea, naval maneuvers seem deceptively quiet for the most part, but in fact conceal deep underlying currents. The outcomes of India’s blue water quest will subtly but surely impact the region’s long-term strategic calculus.



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Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

The recent budget proposals with respect to the power and the renewable energy sector will not only help fulfill India's obligations towards global climate action but will also serve as an impetus to the economy. Elucidate. (250 words)

Reference: [The Hindu](#)

Why this question:

The article deals with important highlights of the Union Budget 2020-2021.

Key demand of the question:

The answer must discuss the significance of the recent budget proposals with respect to the power and the renewable energy sector.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Briefly explain the key initiatives laid out in the budget with respect to the power sector and the renewable energy sector.

Body:

The Union Budget has allocated ₹22,000 crores to the power and renewable energy sector in 2020-21, aiming to improve the financial health of power distribution firms.

The proposals for prepaid smart metering and freedom to choose power suppliers will lay the ground to bring competition in the sector and give consumers a choice. This will increase the efficiency of the whole system.

The Budget provisions have given impetus to clean energy and power.

Discuss the provisions in detail.

Conclusion:

Conclude by reasserting the significance of such proposals to the power sector.

Introduction:

The provisions in Budget 2020 received a positive response from the power sector with the industry largely applauding the big push for renewables and rural economy through solar power and the emphasis on smart metering to ease out discom woes.

Recent budget proposals with respect to the power and the renewable energy sector:

1. 22, 000 crore proposed for power and renewable energy sector in 2020-21.
2. Expansion of national gas grid from the present 16200 km to 27000 km proposed.
3. Further reforms to facilitate transparent price discovery and ease of transactions.
4. India to provide ₹273 billion for promotion of industry and commerce
5. Firms operating old thermal power plants advised to shut units if emission norms not met
6. India to allocate ₹44 billion for clean air incentives in cities with over 1 million people
7. FY21 divestment target pegged at ₹2.1 lakh crore



The significance of the recent budget proposals with respect to the power and the renewable energy sector:

1. The Centre has proposed that discoms should replace conventional meters with smart pre-paid meters and give option to consumers to choose electricity suppliers.
2. State governments need to replace conventional electricity meters with pre-paid smart meters in three years
3. Natural gas pipeline grid will be expanded to 27,000 km from over 16,000 km now and further reforms for transparent price discovery for natural gas will be undertaken.
4. The government also underlined its ongoing efforts to provide clean energy through solar power and Ujjwala program that provides clean cooking fuel to households
5. Large solar capacity would be developed along the railway tracks on lands owned by the Indian Railways.
6. The budget has also provided incentives for states that are taking measures for cleaner air in big cities (with a population above one million). For this, ₹44 billion (~\$615 million) has been allocated in the budget.
7. To provide support to infrastructure projects, an investment clearance cell to be set up through a portal and will provide end-to-end facilitation, support, pre-investment advisory, information on land banks and facilitate the center and state approvals.
8. The government will also create a single investment cell to expedite the grant of licenses to promote entrepreneurship.
9. On India's plan for expanding electric mobility, that customs duty rates are being revised on electric vehicles.

Budget provisions have given impetus to clean energy and power:

1. To bring new energy companies under the lower corporate tax rate is expected to encourage investments. "Similarly measures to strengthen the Contract Act to improve financial condition of distribution companies, allowing farmers to utilize their land for renewable energy generation and an increased outlay for clean air in cities will provide further impetus to clean energy,
2. The decision to extend concessional corporate tax rate of 15 per cent to new power generating companies will give a major boost to the renewable sector.
3. The focus on ensuring smart metering replacing conventional energy meters by prepaid smart meters in the states and UTs over the next 3 years will prove to be a positive step in addressing the financial stress of DISCOMs, if there is 100 per cent compliance,
4. The budget provides a boost to propel domestic consumption through income tax sops for nearly 30 million income taxpayers and through improved financial health of 120 million marginal farmers.
5. The focus on gas and renewable energy will enable a shift towards clean energy and also deliver on commitments under the Paris Climate Agreement.



6. According to rating agency ICRA the measures to boost decentralised solar generation, including through solar pumps, is likely to lower subsidy dependence for discoms and also provide demand boost to solar equipment and energy efficient pump manufacturers.
7. The proposal to boost coverage of prepaid smart meters over the next three-year period is expected to aid discoms in curtailing distribution losses; benefit consumers by providing flexibility to choose suppliers and rates; and provide demand boost to smart meter manufacturers,”
8. The abolition of dividend distribution tax and lower tax rates will encourage fresh investments in the power sector, especially renewable energy and transmission sectors.

The implications these announcements might have on the future of the sector:

1. KPMG’s report suggests that the increased budgetary allocation for MNRE will improve financial assistance for various clean energy initiatives such as solar parks, roof-top solar, off-grid renewable energy, etc.
2. The Rs 1000 crore budget allocated for furthering the PM-KUSUM scheme can also have a major effect on the sector. The report states: ***“This kind of significant monetary allocation will help speed up implementation and could potentially result in 10-15 GW of new capacity creation if it materializes.*”**
3. This will be a big push for farmer’s income, but will in turn require lesser demand for grid scale power, targets for which then should be adjusted downwards.”
4. Additionally, the report also suggests that banks will have to provide funding at an effective cost of interest to aid the implementation of renewable energy projects and the commission will have to consider for feed-in tariff after taking into account the cost of debt.
5. Lastly, the proposal to set up large solar capacity alongside railway tracks can help the Railways add about 18-20 GW capacity by utilizing vacant land owned by the Indian Railways and reduce their power procurement cost.

Conclusion:

The above mentioned initiatives will act as a propellant to push forward the solar energy segment and will also promote development of clean energy in our country as well as provide employment opportunities within the country. These steps would bring significant benefits to the economy as well as consumers.

India’s major power generator NTPC Ltd has raised ‘largest ever’ Samurai loan recently. In the light of this statement explain what is a Samurai loan? and where will the funds raised under it be used? (250 words)

Reference: [Indian Express](https://www.indianexpress.com/article/business/india-nptc-ltd-raises-750-million-term-loan-in-japanese-yen-6481111/)

Why this question:

India’s largest power generator NTPC Ltd has raised a \$750 million-worth term loan in Japanese yen, claiming it to be the “largest ever” Samurai loan raised by any Asian corporate. Thus the question.

Key demand of the question:

The answer must discuss the concept of Samurai loans and their significance.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.



Structure of the answer:

Introduction:

Briefly explain what Samurai Loans are – Samurai loans allow non-Japanese firms to tap into the investment capital available in Japan and borrow funds in yen, which is among the currencies with the lowest interest rates.

Body:

Discuss in detail the concept – The cross border syndicated loan provides the borrower with capital to either enter the Japanese market or the ability to convert the proceeds into

The firm's local currency for use in existing operations.

The loan was raised under the automatic route of RBI's External Commercial Borrowing regulations and has been fully underwritten by the State Bank of India in Tokyo, Sumimoto Mitsui Banking Corporation in Singapore and Bank of India, Tokyo.

The facility has a door-to-door maturity of 11 years — the period within which the amount would have to be paid back — under two tranches.

Conclusion:

Conclude by reasserting the significance of such tools.

Introduction

India's largest power generator NTPC Ltd Monday said that it has raised a \$750 million-worth term loan in Japanese yen, claiming it to be the "largest ever" Samurai loan raised by any Asian corporate. The funds raised would be used towards implementing systems that would help the state-owned power giant bring about a "substantial" reduction in toxic Sulphur oxide emissions.

Body:

Samurai loans are Yen-denominated Cross Border Syndicated Loan for non-Japanese borrowers.

Their **features** include

- Relatively low pricing (low interest) due to ample liquidity of Japanese investors and,
- Their willingness to consider lending to unrated and/or unlisted borrowers from overseas.
- Borrower is free to either enter the Japanese market or the ability to convert the proceeds into the firm's local currency for use in existing operations.

Samurai Loans and India

Indian borrowers have raised a record US\$2.21bn via 10 Samurai loans in 2019, eclipsing the US\$1.6bn raised in 2018 from five deals, according to Refinitiv LPC data.

Examples

- **NTPC** : In an endeavor towards sustainable and cleaner environment, NTPC would utilize these loan proceeds to fund capex for installation of Flue Gas Desulphurization (FGD).
- **Telecom** : Reliance Jio has raised 53.5 billion Japanese yen (approximately Rs 3,251 crore) in Samurai loans.
- **RECL** had raised a bilateral five-year yen loan equivalent to \$92.5 million from Mitsubishi UFJ Financial Group Inc. and swapped it into rupees.

Significance of Samurai Loans

- Dollar lender are turning cautious amid impending interest-rate hikes in the US.
- **Easy availability**: Indian companies lured by Japan's near-record **low interest rates** and easier availability of funds.



- **Cheaper Loans:** Raising yen and swapping the funds to rupees was about 10 basis points cheaper than swapping from dollars to the Indian currency.
- **Lesser Risk :** Risks associated with raising capital in Japanese yen can often be mitigated with cross-currency swaps and currency forwards.
- Tapping and gaining exposure to Japanese markets and investors.

Conclusion

While Japanese capital is available, it is also discerning. Hence companies need to create robust business models, stable cash flow profiles and corporate governance standards that will satisfy Japanese investors. Over the next two decades, as India looks to create world class infrastructure, structures such as Samurai loans will be needed. As the infrastructure sector gradually recovers, capital structure innovation through channeling Japanese capital into attractive investment opportunities in the years to come will be a must.

The informal sector provides the vast majority of opportunities both for its youth and for people coming off the farm to earn incomes. In this context, what necessitates the reorientation of policies towards the informal sector? (250 words)

Reference : [The Hindu](#)

Introduction

The Periodic Labour Force Survey (PLFS) of the National Sample Survey Office (NSSO) released in 2019 showed the unemployment rate in the country in FY18 was at 5.3% in rural India and 7.8% in urban India, resulting in overall unemployment rate of 6.1%.

In India, which currently faces an unemployment problem, the informal sector provides the vast majority of opportunities both for its youth and for people coming off the farm to earn incomes. Hence, India's policymakers need to look at the demerits of formalisation from the perspective of informal sector enterprises.

Body

Importance of informal sector and its role

- According to ILO India Labour Market Update (2016) and NSSO data (2011-12), more than 90 percent of the employment in the agricultural sector and close to 70 percent in the non-agricultural sector falls under the informal category.
- Clearly, the informal sector is not the residual sector of the economy. In reality, it is the dominant sector
- The informal sector may not contribute much to the national income but its dominance in employment is likely to continue for some more time.
- Even while the organized sector has lagged behind, the informal sector has shown improvement in productivity, real wages, employment and capital accumulation.
- Empirical data underlines the fact that the informal sector has done better than its formal counterparts on economic parameters such as investment, job creation and accumulation of fixed assets, among others
- At present, only 10% of India's over 470 million workforces is in the formal sector. In other words, 90% of India's workers do not have the privileges—like social security and workplace benefits—enjoyed by their counterparts who are formally employed.



Necessity to reorient policies towards informal sector

- **Transition to Developed phase** : The development of an economy, from agriculture to the production of more complex products in industry, is a process of learning. Informal enterprises provide the transition space for people who have insufficient skills and assets to join the formal sector.
- **Inclusive development** : Merely making it easy for MNCs and large companies to invest will not increase growth of the economy if enterprises and incomes at the bottom of the pyramid do not grow.
- **Increasing formalization is also detrimental** : Voices of tiny entrepreneurs in the rural heartlands and on the fringes of Indian cities must be listened to while developing policies for 'ease of doing business'.
 - **Low wages** lead to a **low savings rate**, which is detrimental for the **credit cycle** and further lending, hampering development.
 - Informal sector workers usually lack **financial literacy**, depriving them of access to **institutional credit**, thus reducing domestic consumption and harming development.
 - Productivity of the economy decreases as a whole since companies lose the incentive to skill the employees, so that they can better reorient themselves to the demands of the economy.
- **Skill Development and training** : Government must speed up the process of learning within informal enterprises by developing their 'soft' skills. Large schemes to provide enterprises with hard resources such as money and buildings, which the government finds easier to organize, are necessary but inadequate for the growth of small enterprises.
- **Push factor** : Networks and clusters of small enterprises must be strengthened. They improve the efficiency of small firms by enabling sharing of resources; they give them more clout to improve the terms of trade in their favour within supply chains; and they reduce the 'last mile costs' for agencies and providers of finance and other inputs to reach scattered and tiny enterprises.
- **Labour reforms**: Social security architecture to be provided by the government for informal sector workers. Health insurance and availability of health services must be improved, and disability benefits and old-age pensions must be enhanced.

Conclusion

What the informal sector needs is less of regulation and more of support as against the government policy of more regulation and no support. It is time to use the opportunity that the informal sector provides to strengthen and support it. This is not only essential for economic growth but the only way for growth with jobs.

Do you agree that India needs to have an open mind on trade in an economically interconnected and technologically inseparable world? Comment and suggest measures to be taken in this aspect. (250 words)

Reference: [The Hindu](#)

Why this question:

The article is in the backdrop of the recent India's international trade posture that has appeared to turn protectionist in the past week.

Key demand of the question:



The answer must discuss the need for India to have an open mind on trade in an economically interconnected and technologically inseparable world. And suggest what Indian policy makers should do to achieve the same.

Directive:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

Briefly explain the context of the question.

Body:

Explain the nature of present globalization and technological advancements in the world. Present your opinion if India should open its doors in discussing Free Trade Agreements or remain cautious about its domestic manufacturers. Discuss the probable consequences of such a move. Suggest suitable measures to be taken in this regard.

Conclusion:

Conclude with way ahead.

Introduction:

India has recently sent out two indications which reflects, it turning inward and becoming protectionist. The first indicator was that laying out the Budget for the year, the finance minister made several references to the problems with free trade and preferential trade agreements (FTAs and PTAs). The other indicator was that India declined to attend a meeting of trade negotiators in Bali that was discussing the next step in the Association of Southeast Asian Nations (ASEAN)-led Regional Comprehensive Economic Partnership (RCEP) trade agreement.

Body:

Yes, India needs an open mind on trade because:

- India's absence in the Bali meeting, it has sent a clear signal that it does not want to engage on the multilateral front but deal with countries bilaterally.
- But for other countries, since they are part of multilateral grouping, any bilateral meeting with India could take place only after the multilateral process is completed. This also means that the other countries may not offer anything substantial on the bilateral level to India as they would be bound by multilateral RCEP agreement.
- India and Australia began Comprehensive Economic Cooperation Agreement (CECA) talks in 2011 but negotiations since then has not reached any consensus.
- India-United Kingdom have initiated the FTA talks too. However, it is unlikely that the U.K. will actually be able to proceed with a dialog until U.K.'s full withdrawal from the European Union (EU) is completed.
- India's talks with the EU for a Bilateral Trade and Investment Agreement (BTIA) is unlikely to make much headway.
- The motive may be to protect Indian markets from dumping but the consequence of the changes will put Indian importers on notice and discourage imports in general.

Need for India to reconsider its decision:



- The government has invoked the massive \$57-billion trade deficit with China to explain protectionist measures, but it forgets its own trade surpluses with smaller economies, particularly in the neighbourhood, where Indian exports form more than 80% of total trade with Nepal, Bangladesh, Bhutan and Sri Lanka, respectively.
- With the door to RCEP all but closed, and the South Asian Association for Regional Cooperation (SAARC) virtually abandoned, India is not a part of any regional FTA.
- The trend across the world does not favor trade in services the way it does in goods, as most countries have turned migration-averse.
- India's strength in the services sector and its demand for more mobility for Indian employees, is thus becoming another sticky point in FTA negotiations.
- The debate over trade is as much about India's leadership ambitions in the world, and the factors that could inhibit its rise. It would be hard to argue that India can rise in Asia without closer trade links with the East or the backing of South Asia.

Measures needed:

- It is necessary to have open mind in handling trade relations, calculative cost benefit analysis is equally important.
- The technological interventions, military & space intelligence sharing between nations is equally crucial for India to become well equipped & developed. Hence, FTA & regional Trade pacts are highly essential in handling relations.
- FDI from developed nations will be possible when trade relation will be effective. It will impact the future of investment for India.
- Review of the previously signed FTA's with countries like Japan and South Korea.
- Encouraging domestic markets to be more competitive.

Conclusion:

India's demographic might is certainly attractive for international investors, but only if that vast market has purchasing power and is not riven by social unrest and instability. Therefore, in this modern, economically interconnected and technologically inseparable world, India should have an open mind on trade.

Discuss the advantages of disinvestment as a mode for mobilization of resources for the government with recent cases. (250 words)

Reference: [The Hindu](#)

Why this question:

Union Minister of Finance recently announced that the government plans to sell a part of its holding in Life Insurance Corporation (LIC) by way of an Initial Public Offering (IPO). Thus the question.

Key demand of the question:

The answer must discuss the advantages of disinvestment as a mode for mobilization of resources for the government with recent cases.

Directive:



Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain the aspects of disinvestment in general for an economy.

Body:

Disinvestment is the action of an organization or government selling or liquidating an asset or subsidiary. Disinvestment also refers to capital expenditure reductions, which can facilitate the re-allocation of resources to more productive areas within an organization or government-funded project. It is also known as divestiture; it is the opposite of an investment and is usually done when that subsidiary asset or division is not performing up to expectations. Discuss the types of disinvestments. Explain the advantages while highlighting the concerns involved.

Conclusion:

Conclude by reasserting the significance of such measures to the economy.

Introduction:

Disinvestment, or divestment, refers to the act of a business or government selling or liquidating an asset or subsidiary or the process of dilution of a government's stake in a Public Sector Undertaking (PSU). In the most recent developments, the government in the Union Budget proposed to sell a part of its holding in Life Insurance Corporation (LIC) by way of an initial public offering (IPO).

Body:

Advantages of disinvestment as a mode for mobilization of resources for the government:

- Some believe that “the government has no business being in business”.
- The government's role is to facilitate a healthy business environment
- To earn additional income from the proceeds of a stake sale.
- The government has to spend higher amounts on infrastructure to boost economic growth, along with its commitments on health and education.
- India is currently facing an economic slowdown in which indirect tax collections are below par.
- The government has cut corporate tax rates. As a result of cut and to-be-cut tax rates, the government would have less and less cash for its own expenditure in infrastructure and the social sector.
- Disinvestment proceeds will be critical for the government to stick to its Fiscal Deficit target.
- If the fiscal deficit goes out of hand, global rating agencies lower the country's investment grade.
- This would make any future foreign currency loans costlier.
- Here is where proceeds from strategic sales give the government extra spending cushion.
- Improving the structure of incentives and accountability of PSUs in India.
- Brings about greater efficiencies for the economy and markets as a whole.
- Bring relief to consumers by way of more choices and better quality of products and services, e.g. Telecom sector.

Way forward:

- Define the priority sectors for the government based on its strategic interests.
- Investment in PSU's has to be in terms of generation of adequate social and strategic returns.



- Financial return cannot be the sole reason for investment in PSUs. They have to serve social/strategic purposes. The key role of a PSU is to maintain competition in the sector and limit excessive monopoly.
- Government ownership is required for sectors with strategic relevance such as defence, natural resources, etc. The government should, therefore, exit non-strategic sectors such as hotels, soaps, airlines, travel agencies and the manufacture and sale of alcohol.
- The outlook towards strategic divestment should move from the current policy of emphasizing on public ownership and retaining majority shareholding to looking at the strategic interest.
- It is important to realize that ownership is not a substitute for regulation.
- Therefore, instead of creating PSUs in non-priority sectors, the government should look into strengthening the regulatory framework that ensures efficient market conditions. The regulations should also ensure that the basic necessities of the consumers are met.

Account for the role that microfinance institutions can play in poverty alleviation in India. (250 words)

Reference: Economic Survey 2019-20 – Chapter 7

Why this question:

The question is based on the analysis provided by the recently released economic survey upon the role that microfinance institutions can play in poverty alleviation in India

Key demand of the question:

The answer must discuss the role that microfinance institutions can play in poverty alleviation in India

Directive:

Account – Weigh up to what extent something is true. Persuade the reader of your argument by citing relevant research but also remember to point out any flaws and counter-arguments as well. Conclude by stating clearly how far you are in agreement with the original proposition.

Structure of the answer:

Introduction:

Briefly explain what Microfinance institutions are.

Body:

Explain the importance of microfinance institutions in poverty alleviation.

Microfinance services help the poor to lift out poverty, provide them self-employment and empower the women. In this way, microfinance services made poor people start their own business through they can increase income and be bankable which contribute the overall economic growth and poverty reduction.

Discuss about the future prospects these institutions have in India.

Suggest suitable measures to be taken in this regard.

Conclusion:

Conclude by suggesting way forward.

Introduction:

Microfinancing is the delivery of financial services to poor and low income households with limited access to formal financial institutions. It can also be described as banking for the underprivileged. Microfinance institutions (MFIs) came into being in the 90s as banks' reluctance to lend to those without credit history provided an opportunity to those willing to take risk and organize rural communities. According to **Mohammed Yunus** (founder of Grameen Bank in Bangladesh) **access to credit was a human right, essential for the poor to create self-employment and income.**

Body:

Role played by MFIs:



1. The two key systems for the release of financial services to such customers include 'relationship-based banking' for individual entrepreneurs and small businesses along with 'group-based models' where several entrepreneurs come together to apply for loans and other services as a group
2. Be a viable financial institution developing sustainable communities.
3. Mobilize resources to provide financial and support services to the poor, particularly women, for viable productive income generation enterprises enabling them to reduce their poverty.
4. Learn and evaluate what helps people to move out of poverty faster.
5. Create opportunities for self-employment for the underprivileged.
6. Train rural poor in simple skills and enable them to utilize the available resources and contribute to employment and income generation in rural areas.

Benefits from MFIs:

1. **It allows people to provide for their families.** Through microfinance, more households are able to expand their current opportunities so that more income accumulation may occur.
2. **It gives people access to credit.** "By extending microfinance opportunities, people have access to small amounts of credit, which can then stop poverty at a rapid pace,"
3. **It serves those who are often overlooked in society.** About 95 percent of some loan products extended by microfinance institutions are given to women, as well as those with disabilities, those who are unemployed, and even those who simply beg to meet their basic needs.
4. **It creates the possibility of future investments.** Microfinance disrupts the cycle of poverty by making more money available.
5. **It can create jobs.** Microfinance is also able to let entrepreneurs in impoverished communities and developing countries create new employment opportunities for others.
6. **It encourages people to save.** "When people have their basic needs met, the natural inclination is for them to save the leftover earnings for a future emergency,"

However, off-late the main goals of MFIs are deviated:

1. MFIs have strayed away from their original purpose of poverty alleviation and social empowerment to short-term profit-making.
2. Many have begun to replicate the behaviour of mainstream financial institutions, setting financial targets which loan officers are under tremendous pressure to deliver.
3. MFIs are harassing their clients who are usually too desperate to turn away from the credit being offered. This is true even when credit comes with the catch of high repayment rates.
4. Several large MFIs that transformed into small finance banks (SFBs) are looking to diversify into inclusion adjacencies such as micro, small and medium enterprise loans and affordable housing loans.
5. The demand potential in these segments also remains buoyant over the medium term given the untapped potential.



Way forward:

1. There is a need for MFIs to consider adopting more flexible operating models, providing skills training and offering services such as portability of accounts to provide greater access for a longer duration of time.
2. A diversified menu of micro loan products linked to sustainable income generation activities via micro enterprises or a creation of community-based pooled enterprise could possibly make it more attractive and compatible with the requirements of women.
3. In addition, linking such developmental initiatives to an institution to nurture, monitor and handhold those activities in the formative stages is crucial for sustainability.

Conclusion:

As per the World Bank estimates, more than 500 million people have improved their economic conditions via microfinance-related entities. Strengthening the credit check and debt collection processes and educating the villagers about products and consequences is important. A model to retain and recycle within the target population could possibly lead to a sustained route for poverty alleviation.

Discuss the effect of global price movements on food inflation in India. (250 words)

Reference: [Indian Express](#)

Why this question:

The article brings out the fact that Retail and wholesale food inflation rates for December 2019 were the highest since November 2013 and December 2013 respectively, and then provide a detailed analysis of factors affecting the food inflation in the country.

Key demand of the question:

Discuss in detail the effect of global price movements on food inflation in India with suitable justifications.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain the prevailing conditions of food inflation in the country.

Body:

Quote statistics/facts suggesting food inflation in the country. Discuss the major factors responsible for it – local and global factors with greater emphasis on the latter. Quote and discuss the global factors such as – Coronavirus, global crude prices etc. Discuss the possible uncertainty in the trend and measures to address and mitigate it.

Conclusion:

Conclude with solutions for both long term and short term to overcome the persistent food inflation.

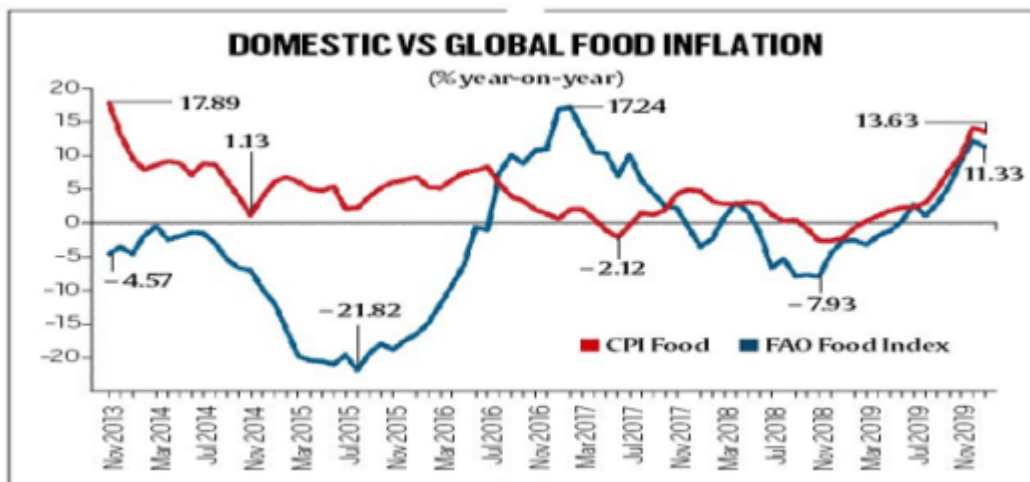
Introduction:

The United Nations Food and Agriculture Organization's (FAO's) food price index — which is a measure of the change in international prices of a basket of major food commodities with reference to a base period (2002-04 = 100) — touched 182.5 points in January 2020, the highest since the 185.8 level of December 2014. This sharp surge in global food prices is reflected in trends in India as



well. Annual consumer food price index (CFPI) inflation stood at just 2.99% in August 2019, before climbing to 5.11%, 7.89%, 10.01%, 14.19% and 13.63% in the succeeding five months.

Body:



Factors leading to food inflation in India:

1. While the recent rise in domestic food prices has been blamed largely on “local” factors — poor rainfall during the first half (June-July) of the monsoon season and too much of it thereafter till about mid-November.
2. This lead to both reduced/delayed kharif sowings and damage to the standing crop at maturity/harvesting stage — some of it is also “imported”.
3. On the other hand, the increase in the retail prices of onion in Delhi from Rest 22 per kg on January 31, 2019 to Rs 50 on January 31, 2020, was purely due to the failure of the domestic kharif crop.
4. While global prices can be transmitted to the domestic market too through exports — traders would sell abroad if realisations are better relative to the local market — the government has foreclosed that possibility by banning/restricting onion shipments since September 2019.

Possible Effects:

- the novel coronavirus epidemic that has reduced Chinese buying of everything from palm oil and soyabean to milk powder and meat.
- Palm oil prices in Malaysia have plunged from 2,922 ringgit (\$719) to 2,725 ringgit (\$658) over the last one month.
- Crude Oil: Brent crude prices had touched \$70 per barrel after the January 3 United States airstrike that killed Iran’s top military commander, but have dropped since, closing at \$57.67/barrel on Tuesday.
- The prospect of a bumper rabi (winter-spring) crop in India. The kharif harvest turned out to be not so good because of excess and unseasonal rain. That same rain, though, has helped boost rabi acreage by 9.5% compared to last year.
- The arrival of this crop in the mandis from March should cool down prices, especially of vegetables and pulses, which showed the highest year-on-year retail inflation of 50.19% and 16.71% in January.



- Global palm oil ending stocks this year are projected to be the lowest since 2009-10, while sugar is also expected to move significantly into deficit.
- Supply tightness is being seen both globally and in India, even in milk.

Measures needed:

- Storage capacities and infrastructure should be increased.
- Develop the agricultural facility with good agricultural practice which leads to the transition from staple food crops to diversification of crops.
- Backward linkages to farmers need to be made more robust. Contract farming can be promoted. According to the **Model Contract Farming Act, 2018**, the contract will specify the quantity, quality and price of produce being supplied. This would shield farmers from price volatility, subject to quality commitments.
- Government should accelerate technology dissemination, especially relating to environmental sustainability, climate change, crop yields and mechanisation. This will reduce dependence on costly inputs, labour and chemicals, and stimulate food supply.
- **Info supply chain:** The government should invest in a market information system for accurate and timely data of crop production, trade and prices. This will send right price signals from consumers to the supply chain, improve bargaining power and reduce business risk and response time.
- **Real competition:** Government should end rent-seeking in the food supply chain by encouraging competition through efficient markets. Removing barriers such as mandi licences and state taxation laws will puncture marketing margins. Consumers rarely benefit from any crop price fall because of the marketing margin commanded by the biggest players.
- **Calm volatility:** Government should encourage strengthening of the supply pipeline by the private sector to reduce price volatility. There is an inverse relationship between stocks in the pipeline and prices. Smaller the stocks lying in godowns, higher the prices shoot.
- Instead of treating stockists as criminals under the Essential Commodities Act (ESA), a transparent online mechanism to track commodities lying in warehouses should be introduced.
- The government should stop market interventions in its zeal to balance consumer and farmer interests.
- Rising food prices are the outcome of farm costs, business risk premium and market concentration. We can lower all three through a smarter mix of technology, institutions and policies.

Research and Development (R&D) plays a critical role in determining the productivity and economic growth of a nation, Discuss the relevance of harnessing private sector investments to improve the spendings on R and D in the country.(250 words)

Reference: [The Hindu](#)

Why this question:

In an effort to stimulate investment in research and development (R&D), the Department of Science and Technology is mooted a fund that will match the contributions made by private companies in R&D. Thus the context of the question.

Key demand of the question:

The answer must discuss the significance and relevance of harnessing private sector investments to improve the spendings on R&D.

Directive:



Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Explain the Research and Development investments scenario in India.

Body:

Highlight the present situation of low expenditures in the R&D sector. Substantiate with suitable facts such as – The total expenditure on R&D in India has tripled in the last decade in nominal terms. However, as a fraction of GDP, public expenditures on R&D have been stagnant over the years. It is between 0.6-0.7 percent of GDP over the past two decades. Discuss the public sector dominance in the sector. Explain what is the present idea of harnessing the private sector investments for betterment of the R&D sector.

Conclusion:

Conclude with benefits of such policies and assert the significance of R&D for the growth and development of the country.

Introduction:

According to Economic survey 2017-18, India's spending on R&D in terms of percentage of GDP has been stagnant at 0.6 to 0.7 per cent in the last two decades — much lower than the US, China, South Korea and Israel. Private investments in R&D have severely lagged public investments in India, it said. In most countries, the private sector carries out most of the R&D. However, in India, the government is not just the primary source of R&D funding but also a primary user of these funds.

Body:



Relevance of harnessing private sector investments to improve the spendings on R&D in the country:

- Key drivers of economic performance and social well-being
- It is important to inculcate scientific temper among masses in order to fight superstitions, distorted truth and religious fanaticism that has been crippling India
- Innovation and technological improvement has become essential to combat and adapt to climate change and promote sustainable development,
- It is imperative for combating national security threats ranging from cyber ware to autonomous military systems such as drones.



- Investing in research and providing adequate incentives leads to creation of jobs, especially for the pool of engineers and researchers in the society.
- Under the 'Make in India' program, the government has targeted to create 100 million jobs from the manufacturing sector by 2022.

Measures needed:

- The private sector should be incentivised to undertake and support R&D through CSR (Corporate Social Responsibility) funds.
- State governments should also invest in application-oriented research aimed at problems specific to their economies and populations.
- There is a need to encourage investor-led research. In this direction, the Science and Engineering Research Board (SERB) has already been established. It is a promising start that needs to expand with more resources and creative governance structures.
- R & D should focus on technology and extension services that is directly related to common people
- Engage private sector, state government and Indian Diaspora

Conclusion:

Investing in educating youth in science and mathematics, reform the way R&D is conducted, engage the private sector and the Indian diaspora, and take a more mission-driven approach is the need of the hour in India. Vigorous efforts to improve the "ease of doing business" need to be matched by similar ones to boost the "ease of doing science."

Discuss the Economic effects of the coronavirus on the Indian economy. (250 words)

Reference: [The Hindu](#)

Why this question:

From mobile phones, toys, pharmaceuticals to kitchen goods, traders in several sectors here say that the slowdown in trade activity with China, as a consequence of COVID-19, will soon start to effect business.

Key demand of the question:

The answer must discuss the dependence of China on India and thus the implacable possibilities of the corona outbreak.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly highlight the dependence of Indian economy on China.

Body:

Highlight the majority dependence of China; import of finished goods for re-distribution, raw material for production purposes and the import of spare parts used in assembling goods. Discuss what can be the possible effect of Corona outbreak? Explain what India should do in such a situation.

Conclusion:

Conclude that it's a lesson for India to reduce heavy dependencies on a single country and diversify its imports and as well focus on domestic markets.

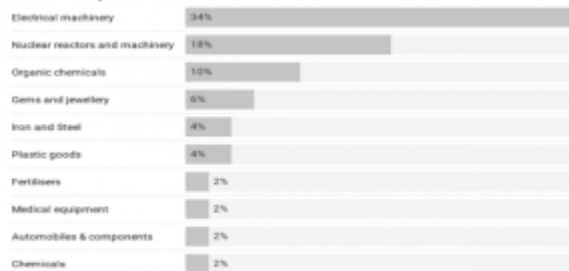
Introduction:



The coronavirus outbreak has brought a large part of the world's second-largest economy China to a standstill and its impact has been felt across industries. On January 30, the World Health Organization (WHO) declared the coronavirus (COVID-19) outbreak a global health emergency. The impact on India is felt through supply chain disruptions from China as well as regional players, who in turn are net importers from China.

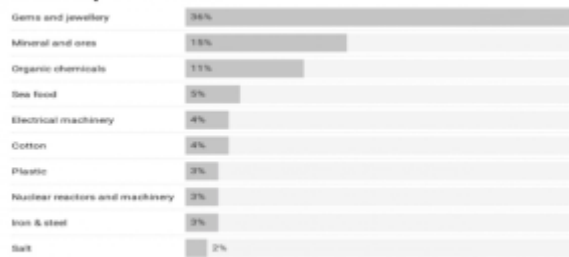
Body:

India's Imports from China



Note: China including Hong Kong
Chart: Dipu Rai - Source: Interecon

Indian exports to China



Note: China including Hong Kong
Chart: Dipu Rai - Source: Interecon

Economic effects of the coronavirus on the Indian Economy:

- The impact on India is felt through supply chain disruptions from China as well as regional players, who in turn are net importers from China.
- India's annual trade with China is ~\$90 billion—India imports goods worth \$75 billion and exports goods worth \$15 billion.
- These include **'electrical and telecom machinery,' 'organic chemicals,' 'nuclear reactors,' 'plastics' and 'pharmaceuticals.'** The first four of these five groups also make up India's top imports in 2019 fiscal year.
- On account of factory closures in China, supply chains would get disrupted and this could result in shortages, especially of electronic goods and medicines.
- A key supplier of **generic drugs** to the global market, Indian companies procure almost 70 percent of their **active pharmaceutical ingredients** for their medicines from China.
- Trade deficit prints may be lower for the next couple of months. We may see the price of consumer durables inch higher. This would drive core inflation higher, which is showing signs of bottoming out.
- This, in turn, could make it more difficult for the MPC to provide further monetary policy stimulus. January's core inflation print came in at 4.2 percent compared to December's 3.8 percent.



- Fall in global crude prices on account of an anticipated slowdown in demand would also result in a lower import bill. The sectors that are likely to be impacted on the export front are diamonds, leather and petrochemicals
- Imports are likely to contract more than exports and therefore, from a current account perspective, the outbreak could actually be rupee-supportive.
- **Offshore fundraising by Indian corporates** is also likely to slow down, as raising money onshore has become cheaper after the LTRO announcement by the RBI
- **The retail mobile trade**, for instance, is almost entirely dependent upon China. While every month, old models of mobile phones would see a drop in prices as new models are supplied, in the current month, no such drop in prices has taken place and the supply of goods is being rationed by companies
- **The toy market** sees nearly 80% of its demand met by products made in China, while only 20% is met by Indian manufacturers
- Many items, like belt buckles, Christmas lights, specific parts of gas stoves, are only made in China. The prices of most of these goods had already seen an upward correction, and in some cases it is as much as 50%
- **The travel and tourism sector** will be affected badly. Several overseas airlines have stopped flights to China and international hotel chains have also been offering refunds. Most of the Chinese citizens are avid travellers, hence the tourism in other countries might feel the ripple effect.

Way forward:

1. India and the other countries should be prepared to face the effects both in terms of the spread of the virus and in dealing with the economic slowdown which can occur.
2. RBI Governor has said that the Reserve Bank of India is reviewing the retail inflation targeting framework behind monetary policy decision as well as its effectiveness and also plans to hold stakeholders' consultations including with the government in June.

Conclusion:

Nevertheless, India's chief economic advisor and other analysts have pointed to the opportunity for India to expand its exports as a result of the crisis. Helped by foreign investment, India has "slightly" reduced its dependence on China over the past five years, although complexities in its manufacturing system make it difficult for Asia's third-largest economy to quickly take advantage.

Inclusive growth and issues arising from it.

What are the challenges for inclusive growth in India? Suggest measures to be taken to address these challenges. (250 words)

Reference: [EPW](#)

Why this question:

At the question is straightforward and aims to ascertain the challenges facing the inclusive growth in India.

Key demand of the question:

The answer must discuss the importance of inclusive growth and the need to address the challenges facing it. And suggest measures to overcome such concerns.

Structure of the answer:

Introduction:



Briefly explain what you understand by Inclusive growth.

Body:

Inclusive growth has remained elusive despite government's best efforts. Post-1991 India has witnessed a rise not only in prosperity but also disparities. Inequalities have got widened and accelerated. Well developed and prosperous regions have attracted most of foreign investment and have grown further rapidly. Explain what the major challenges for inclusive growth are:

Poverty, lack of adequate employment opportunities.

Lack of adequate education and skill development.

Lack of infrastructure – Social and physical.

Governance deficit, especially in backward regions. Etc.

Suggest measures and solutions to address these issues.

Conclusion:

Conclude that targeted policy measures addressing the above, with the efforts of government policies and programmes aiming at achieving targets in above key sectors can lead to inclusive growth.

Introduction:

The concept of **inclusive growth focuses on equitable growth for all sections of society**. This involves ensuring that fruits of growth and development reach the poor and marginalized sections as well. Inclusiveness is a multi-dimensional concept. Inequalities that include, social exclusion, discrimination, restrictions on migration, constraints on human development, lack of access to finance and insurance, corruption – are sources of inequality and limit the prospect for economic advancement among certain segments of the population, thereby perpetuating poverty.

Body:



Challenges to inclusive growth:

Poverty alleviation is one of the big challenges for India. Eradication of poverty in India is generally only considered to be a long-term goal. Poverty alleviation is expected to make better progress in the next 50 years than in the past, as a trickle-down effect of the growing middle class.

Increasing stress on education, reservation of seats in government jobs and the increasing empowerment of women and the economically weaker sections of society, are also expected to contribute to the alleviation of poverty



Government schemes should target eradication of both poverty and unemployment (which in recent decades has sent millions of poor and unskilled people into urban areas in search of livelihoods) attempt to solve the problem, by providing financial assistance for setting up businesses, skill honing, setting up public sector enterprises, reservations in governments, etc.

Disparity

1. The disparity between -> Rich and Poor
2. The disparity between -> Urban and Rural
3. The disparity between -> Educated and Uneducated

Demography: We have 550 million young people below 25 age, we have the ready workforce for the world, everything we do today must focus on this population, we need to provide them nutrition food, skills, and job opportunities to grow.

Improving the delivery of core public services: The incomes rise, citizens are demanding better delivery of core public services such as water and power supply, education, policing, sanitation, roads and public health. As physical access to services improves, issues of quality have become more central.

Maintaining rapid growth while making growth more inclusive: The growing disparities between urban and rural areas, prosperous and lagging states, skilled and low-skilled workers, the primary medium term policy challenge for India is not to raise growth from 8 to 10 percent but to sustain rapid growth while spreading its benefits more widely.

Developmental challenges:

Expansion: Expansion is happening every day in developing countries like India, but perhaps not happening in the pace we would like. We have roads but we need more roads likewise we need to expand energy, infrastructure, facilities, etc.

Excellence: Leaving of our top 5 or 10% quality of our education, our services, our governance, is really not that so great, we must collectively work towards improving quality in everywhere.

Equity: We need to make sure that the poorest to the poorer can indeed get the best education, health, jobs, and other facilities.

Social development is possible through achieving Women Empowerment and eradicating the regional disparities. Though the Government is giving the women empowerment by giving special reservations, the women's advancement in India is still not matched the expectations for inclusive growth.

Measures needed:

1. Lowering the incidence of poverty and inequality requires a comprehensive strategy.
2. Important steps need to be taken like framing policies to improve health, nutrition and education.
3. Labour market reforms and reforms of direct taxation will have redistributive effects on the system.



4. Schemes like National Rural Employment Guarantee Scheme (NREGS), provide 100 days or more of employment at a wage determined by government are already in progress but there is a need to check the cost effectiveness of these schemes
5. Reforms to plug the leakages in the PDS, introduction of GPS tracking, activating vigilance committees, must be undertaken across the country.
6. Research needs to be carried out by government agencies to document the 'best practices' in the implementation of government schemes.
7. Minorities and other excluded groups, including the poor in upper castes, also need special programmes to bring them into the mainstream.

Conclusion:

To achieve inclusiveness, all these dimensions need to be looked into. Institutional and attitudinal changes should be brought about though this will take time. Awareness about inclusiveness and empowerment is required to be created. Reducing poverty is to be taken as key element in our inclusive growth strategy and there has been some progress in that regard.

Effects of liberalization on the economy, changes in industrial policy and their effects on industrial growth.

Discuss the concept of what Share pledging; explain why it is an important tool in gauging a company's financial health. (250 words)

Reference: [The Hindu](#)

Why this question:

The Securities and Exchange Board of India (SEBI) has amended the SEBI (Depositories and Participants) Regulations by including an additional explanation that states that 'pledge' would also refer to 're-pledge of securities for margin or settlement obligations.'

Key demand of the question:

The answer must discuss about the move; benefits and significance; about share pledging.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Define what is meant by Pledging of shares.

Body:

What is a pledged share? – Simply put, it is taking loan against the shares one holds. It can be done by both investors and promoters.

Why do promoters pledge shares? – One of the methods promoters use to raise finance is to take loans against their holding in their company from banks or non-banking financial companies. For these financial institutions, these shares are collateral. Promoters can raise funds for various reasons- for meeting requirements of the business or personal needs.

What are the risks involved for the retail investors? – explain.

Highlight the changes made recently; Onus of bonafide pledge created from margin account of a stock broker will now lie with the depository following the SEBI amendment.



Discuss how all this helps gauge the financial health of any company.

Conclusion:

Conclude with the likely benefits of the move.

Introduction:

Pledging of shares is one of the options that the promoters of companies use to secure loans to meet working capital requirement, personal needs and fund other ventures or acquisitions. A promoter shareholding in a company is used as collateral to avail a loan. While pledging shares, promoters retain their ownership.

The Securities and Exchange Board of India (SEBI) has amended the SEBI (Depositories and Participants) Regulations by including an additional explanation that states that 'pledge' would also refer to 're-pledge of securities for margin or settlement obligations.'

Body:

Share pledging – an important tool in gauging a Company's financial health:

1. Promoters pledging their personal holdings with lenders should not affect the operations of a company which has good cash flows or sound fundamentals.
2. But companies with a high proportion of promoter pledging are viewed as risky by the market because it raises questions about promoters being cash-strapped in their personal capacity or facing debt problems in other group ventures.
3. In a bull market, promoter pledging may not create too many issues as higher stock prices boost the value of the collateral against the loans advanced by lenders.
4. But in bear markets, steep stock price declines can trigger margin calls that set off a downward spiral in a stock.
5. Investors therefore need to keep a close eye on promoter pledging, as companies with high pledging can witness high volatility in their stock prices.
6. As an investor, you can find the information on pledged shares on the websites of the stock exchanges. SEBI has mandated that publicly listed companies need disclose information on their pledged shares along with the shareholding pattern every quarter to NSE and BSE.
7. In case promoters fail to make up for the difference, lenders can sell the shares in the open market to recover the money.
8. However, as the share price keeps fluctuating, the value of the collateral also changes.

Challenges:

1. Share pledging is a standard way of accessing funds for companies, but bitter experiences in the past have created a negative impression about the instrument, as it signals poor cash flow patterns, credit crunch in a company and promoters' inability to meet short-term working capital requirements.
2. Share pledge can be troublesome for companies at times, as promoters are required to maintain the value of the collateral all the time by providing additional shares to lenders when their value erodes.



3. This can lead to a reduction in the promoters' shareholding in the company, further value erosion in the stock due to infusion of additional paper in the market, and even sudden change of guard in the company because of alteration in shareholding pattern.
4. Promoters often make such share pledges for personal needs as well.

Conclusion:

Given that a large proportion of a promoter's wealth is likely to be held in the form of shares, share pledging agreements help entrepreneurs raise quick money when they need it.

Major crops cropping patterns in various parts of the country, different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers Discuss the prospects of transforming Indian Agriculture through farm Mechanization. Highlight the steps taken so far by the government of India in recent times in this direction. (250 words)

Reference: [PIB](#)

Why this question:

The article highlights the significance of transforming agriculture through farm mechanization.

Key demand of the question:

The answer must discuss the significance of farm mechanization applied to Indian context to transform the Indian agriculture scenario to the next level.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly highlight steps Indian Government has been taking to achieve Doubling of Farmer's Income by 2022 and emphasis on the aspects of farm mechanization.

Body:

Explain what you understand by farm mechanization.

Highlight the steps that have been taken by the government of India in this direction.

Discuss the significance of mechanization as applied to Indian setup of agriculture.

Indian Government appointed Ashok Dalwai Committee to recommend measures to achieve farm mechanization targets.

One of the most important recommendations of the committee is to fast track the mechanization of farm implements in all areas of the country as improved agricultural implements and machinery are essential inputs for modern agriculture.

Conclusion:

Conclude by highlighting schemes and policies being taken by the government in this direction.

Introduction:

Agriculture involves 65% of the population and out of this 55% are directly dependent for their livelihood. With huge population growth and land transfer it has led to the problem of fragmentation which has deteriorated the condition of land and has limited the scope for mechanization. Farm Mechanization deploys Machineries in Farming activities, has a potential to



transform Agri productivity & Farm Income & meeting the rising food demand challenges by boosting food security efforts.

Body:

Prospects of transforming Indian Agriculture through farm Mechanization:

1. It will lead to increased productivity in the yields, thereby leading to better remuneration and decreased distress migration and related problems.
2. Leads to increased land coverage
3. It would reduce the disguised unemployment.
4. Sprinkler and Drip irrigation can save huge water as well as prevent soil erosion.
5. Deep ploughing increases the soil fertility and it also help in controlling weeds also we make use of fallow land with the help of new machines.
6. Better transportation and supply chain management of agri-produce to reduce post-harvest loss.

Steps taken up by Government of India:

1. **Sub Mission on Agricultural Mechanization (SMAM):** a special dedicated scheme has been introduced by Government, under which subsidy is provided for purchase of various types of Agricultural implements and machinery used for tillage, sowing, planting, harvesting, reaping, threshing, plant protection, inter cultivation and residue management.
2. A special Scheme to support the efforts of the Governments of Haryana, Punjab, Uttar Pradesh and the NCT of Delhi to address air pollution due to stubble burning and to subsidize machinery for the farmers for in-situ management of crop residue.
3. a new Central Sector Scheme on “Promotion of Agricultural Mechanization for In-Situ Management of Crop Residue in the States of Punjab, Haryana, Uttar Pradesh and NCT of Delhi” (CRM) for the period from 2018-19 to 2019-20 has been also launched.
4. Some of the State Governments like Kerala, Tamil Nadu and Madhya Pradesh are providing farm machineries to the farmers at a concessional rate through their Agricultural Departments.
5. to make available costly and bigger advance farm machinery at the door steps of the farmers on rent basis, Government is promoting **Custom Hiring Centres (CHC)** through a SMAM scheme.
6. A special consideration for the farmers of North Eastern Region (NER) is available, 95% subsidy upto a project cost of Rs. 10 lakh is provided to group of NER farmers for establishment of Custom Hiring Centres.
7. The Government has also developed and launched **Multi lingual Mobile App “CHC- Farm Machinery”** which helps the farmers for getting rented farm machinery and implements through Custom Hiring Service Centers (CHC) in their area.
8. The Government has introduced the **Kisan Credit Card (KCC) Scheme**, which enables farmers to purchase agricultural inputs and draw cash to satisfy their agricultural and consumption needs.



9. With a view to ensure availability of agriculture credit at a reduced interest rate of 7% p.a. to the farmers, an interest subvention scheme for short term crop loans upto Rs.3.00 lakh is implemented.

Conclusion:

Improved agricultural implements and machinery are essential inputs for modern agriculture. It enhances productivity besides reducing human drudgery and cost of cultivation. It also helps in improving utilization efficiency of other inputs. Thus, Farm Mechanization is the need to ensure Farmers' welfare through increased farm incomes, improving their livelihoods, strengthening both food & income security & boosting govt ambitions to double farm income by 2022.

Discuss the current status of food grain production in India and associated challenges.
(250 words)

Reference: [The Hindu](#)

Why this question:

The Agriculture Ministry's second advance estimates were released recently, consequently forcing us to probe the current status of food grain production in India and associated challenges.

Key demand of the question:

The question is pretty much direct and aims to assess the current status of food grain production in India and challenges associated with it.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Start with the key highlights of the estimate.

Body:

Note the following facts and use them to provide for a brief analysis of the current scenario –

Total food grain production is projected to scale an all-time high of almost 292 million tonnes in 2019-20, propelled by record production of both rice and wheat.

Production of several crops, including rice and major pulses, was lower than targeted in the kharif or the monsoon season. However, the abundance of late monsoon rains resulted in cumulative rainfall that was 10% higher than the long-period average for the season. This helped farmers rake in rabi or winter harvests that were larger-than expected in almost all crops.

Thus, the estimate for total food grain output of 291.95 million tonnes is more than six million tonnes higher than the 285.21 million tonnes produced in 2018-19.

The Agriculture Ministry expects rice production to reach 117.47 million tonnes, slightly higher than the 116.48 million tonnes produced in 2019. Wheat, which is only grown in the rabi season, will see a major surge in production at 106.2 million tonnes in the current year, from the 103.6 million tonnes in 2018-19.

Discuss the challenges involved – Despite the government's drive to encourage millets and nutri-cereals, production failed to match targets this year.

Explain the story with Pulses, oil seeds, the sudden peak in sugarcane production etc.

Conclusion:

Conclude with what needs to be done for effective and efficient management of food grains in the country.

Introduction:

As per Second Advance Estimates for 2019-20, total foodgrain production in the country is estimated at record 291.95 million tonnes which is higher by 6.74 million tonnes than the production of



foodgrain of 285.21 million tonnes achieved during 2018-19. However, the production during 2019-20 is higher by 26.20 million tonnes than the previous five years' (2013-14 to 2017-18) average production of foodgrain, a release issued by the government said.

Body:**Reasons for increased food grain production in India:**

1. Production of several crops, including rice and major pulses, was lower than targeted in the kharif or the monsoon season.
2. However, the abundance of late monsoon rains resulted in cumulative rainfall that was 10% higher than the long-period average for the season.
3. This helped farmers rake in rabi or winter harvests that were larger-than-expected in almost all crops.
4. The Agriculture Ministry expects rice production to reach 117.47 million tonnes, slightly higher than the 116.48 million tonnes produced in the previous year.
5. Wheat, which is only grown in the rabi season, will see a major surge in production at 106.2 million tonnes in the current year, from the 103.6 million tonnes in 2018-19.
6. Thus, the estimate for total foodgrain output of 291.95 million tonnes is more than six million tonnes higher than the 285.21 million tonnes produced in 2018-19.

Associates challenges:

1. Despite the government's drive to encourage millets and nutri-cereals, production failed to match targets this year, with the estimate pegged at 45.24 million tonnes.
2. Pulses production was also estimated to come in lower-than targeted 23 million tonnes, although it was still higher than the previous year's harvest.
3. Most pulses are dry land crops, grown on land without irrigation and the delay in monsoons in many areas hit kharif harvests although rabi production improved.
4. Oil seeds production was estimated at almost 342 million tonnes, higher than last year but still lower than the target for this year.
5. Sugarcane is the only major crop where this year's estimated production of 3,538 million tonnes was significantly lower than last year's output of 4,054 million tonnes.
6. A glut in sugar production over the last few years had resulted in a crash in prices and an increase in payment arrears from sugar mills to cane farmers.

Measures needed to diversify the food grain production:

1. Revisit the MSP policy: Currently, MSPs are announced for 23 commodities, but effectively price support operates primarily in wheat and rice and that too in selected states. This creates highly skewed incentive structures in favour of wheat and rice. While country is short of pulses and oilseeds (edible oils), their prices often go below MSP without any effective price support.
2. HLC recommends that pulses and oilseeds deserve priority and Government must provide better price support operations for them, and dovetail their MSP policy with trade policy so that their landed costs are not below their MSP.



3. Negotiable warehouse receipt system should be taken up on priority and scaled up quickly. Under this system, farmers can deposit their produce to the registered warehouses, and get say 80 percent advance from banks against their produce valued at MSP.
4. They can sell later when they feel prices are good for them. This will bring back the private sector, reduce massively the costs of storage to the government, and be more compatible with a market economy.
5. Buffer Stocking Operations and Liquidation Policy: One of the key challenges for FCI has been to carry buffer stocks way in excess of buffer stocking norms. FCI have to work in tandem to liquidate stocks in Open Market Sale Scheme or in export markets, whenever stocks go beyond the buffer stock norms.

Issues related to direct and indirect farm subsidies and minimum support prices; Public Distribution System- objectives, functioning, limitations, revamping; issues of buffer stocks and food security; Technology missions; economics of animal-rearing.

In the recent times there has been uproar to review the open ended procurement policy, Discuss what the policy is about? And explain how does the government decide minimum support price for the farmers? (250 words)

Reference: [The Hindu](#)

Why this question:

As the debate surrounding the review of open-ended procurement policy has started gaining momentum, following a recommendation by the Commission for Agricultural Costs and Price (CACP) to the Centre government, several farmers and farmers' bodies in Punjab and Haryana have hinted that any move To stop or limit it would be opposed and resisted.

Key demand of the question:

The answer must discuss in detail the concept of open ended procurement policy and the concerns associated with it, also explain how the government decides upon the MSP.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Briefly explain what open ended procurement policy is.

Body:

Under open-ended procurement policy, government agencies buy whatever quantity of wheat and rice is brought by farmers into the mandis (wholesale markets), within the stipulated time and which conforms to fixed quality Parameters for Central pool.



Then move onto explain the procedure of forming MSP; CACP submits its recommendations to the government in the form of Price Policy Reports every year, separately for five groups of commodities namely Kharif crops, Rabi crops, Sugarcane, Raw Jute and Copra.

Discuss the detailed procedure.

Explain the challenges involved and suggest solutions to it.

Conclusion:

Conclude with the need to have a balanced approach.

Introduction:

As the debate surrounding the review of open-ended procurement policy has started gaining momentum, following a recommendation by the Commission for Agricultural Costs and Price (CACP) to the Centre government, several farmers and farmers' bodies in Punjab and Haryana have hinted that any move to stop or limit it would be opposed and resisted.

Open ended procurement policy:

Under open-ended procurement policy, government agencies buy whatever quantity of wheat and rice is brought by farmers into the mandis (wholesale markets), within the stipulated time and which conforms to fixed quality Parameters for Central pool. The Central Government extends price support to wheat and paddy through FCI and State Agencies. Procurement at MSP is open ended i.e., whatever foodgrains are offered by the farmers, within the stipulated procurement period and which conforms to the quality specifications prescribed by Government of India, are purchased at MSP (and bonus/incentive, if any) by the Government agencies including FCI for central Pool. Some States also declare State bonus on wheat and paddy over and above MSP. Government agencies undertake MSP operation at mandis/ temporary purchase centres/aggregation points. Location and number of purchase centres to be opened are decided in consultation with /by the State governments.

1. With the Food Corporation of India (FCI) sitting on huge stockpiles of food grain, the Commission for Agricultural Costs and Prices (CACP), the central government's farm price support fixing panel, has again strongly recommended reviewing the open-ended procurement policy.
2. Under the latter, government agencies buy whatever quantity of wheat and rice is brought by farmers into the mandis (wholesale markets), within the stipulated time and which conforms to fixed quality parameters for Central pool.
3. The policy, it says, has led to mounting food stocks and adversely affected crop diversification. ***"These excess stocks create storage problems and also high storage and financing costs, leading to high subsidy burden,"***

Minimum Support Prices:

1. Minimum Support Price is the price at which government purchases crops from the farmers, whatever may be the price for the crops.
2. MSP helps to incentivize the framers and thus ensures adequate food grains production in the country.
3. MSPs are supposed to act as a floor price for private traders, thereby helping avoid distress sales.
4. They are also designed to serve as a price signal to farmers, who tend to shift to crops that come with higher support prices.

**Who announces?**

The Cabinet Committee of Economic Affairs announces MSP for various crops at the beginning of each sowing season based on the recommendations of the Commission for Agricultural Costs and Prices (CACP). The CACP takes into account demand and supply, the cost of production and price trends in the market among other things when fixing MSPs.

Determination of MSP:

In formulating the recommendations in respect of the level of minimum support prices and other non-price measures, the Commission takes into account, apart from a comprehensive view of the entire structure of the economy of a particular commodity or group of commodities, the following factors:-

1. Cost of production
2. Changes in input prices
3. Input-output price parity
4. Trends in market prices
5. Demand and supply
6. Inter-crop price parity
7. Effect on industrial cost structure
8. Effect on cost of living
9. Effect on general price level
10. International price situation
11. Parity between prices paid and prices received by the farmers.
12. Effect on issue prices and implications for subsidy

The Commission makes use of both micro-level data and aggregates at the level of district, state and the country. The information/data used by the Commission, inter-alia include the following:-

1. Cost of cultivation per hectare and structure of costs in various regions of the country and changes there in;
2. Cost of production per quintal in various regions of the country and changes therein;
3. Prices of various inputs and changes therein;
4. Market prices of products and changes therein;
5. Prices of commodities sold by the farmers and of those purchased by them and changes therein;
6. Supply related information – area, yield and production, imports, exports and domestic availability and stocks with the Government/public agencies or industry;
7. Demand related information – total and per capita consumption, trends and capacity of the processing industry;



8. Prices in the international market and changes therein, demand and supply situation in the world market;
9. Prices of the derivatives of the farm products such as sugar, jaggery, jute goods, edible/non-edible oils and cotton yarn and changes therein;
10. Cost of processing of agricultural products and changes therein;
11. Cost of marketing – storage, transportation, processing, marketing services, taxes/fees and margins retained by market functionaries; and
12. Macro-economic variables such as general level of prices, consumer price indices and those reflecting monetary and fiscal factors.

Concerns / Challenges:

1. Farmer protests across the country could have significant economic and political impact.
2. Farmer protests have forced several states to waive agricultural loans, at a cost of several tens of thousands of crores.
3. India's price support programme is also promoting cultivation of water intensive crops like paddy and sugarcane even in water deficit regions such as Punjab, Haryana and Maharashtra
4. Farmers keep producing the same varieties as cropping pattern is hardly changed in some regions.
5. Rice and sugarcane occupy 25% of India's agricultural land but consume more than 60% of its irrigation water.
6. Higher MSPs over-incentivize production leading to supply glut.
7. Rice and wheat are the best examples where the government first incentivises their production and then tries not to let the prices fall by procuring more than one-third of the total produce.
8. Hikes in MSPs also adversely affect exports by making Indian farm goods uncompetitive especially when international market prices are lower.
9. That leads to increase in net domestic supply that further depresses prices forcing the government to raise duties to check imports.
10. Price deficiency payment schemes in MP and Haryana was a failure.
11. Price deficiency payment mechanism, whereby farmers, when they fail to get MSPs, could be directly paid the difference between MSP and prices they receive.

Way Forward:

1. India should now explore alternate models to boost farmers' income and stop relying on MSPs alone.
2. To improve farm income, the challenge now is to find new markets.
3. NITI Aayog is already working on alternative mechanisms.



4. A non-inflationary way to resolve the agricultural crisis is to raise farm productivity through increased investment in irrigation and post-harvest infrastructure.
5. Procurement system of the government needs to be streamlined.
6. It's time to consider a transparent, crop neutral and easier to implement income support programme— similar to what Telangana has done.
7. The state government gives a payment of Rs 10,000 per hectare of cultivable land to all farmers irrespective of the crops they raise.
8. Given its relative simplicity and non-market distorting nature, it can be replicated in the whole of India.
9. Agriculture in India needs an innovative solution to free the farmer from excessive government control.

Conclusion:

The current open ended procurement policy should continue in its current form. ***"The present policy is in the best interest of the country. Wheat and rice are basic food items. The present policy should continue in the interest of Punjab as well as the country,"***

Discuss the reasons leading to depletion of Native breeds of cattle in the country, recommend measures to preserve them. (250 words)

Reference: [The Hindu](#)

Why this question:

The government has unveiled SUTRA PIC or Scientific Utilisation Through Research Augmentation-Prime Products from Indigenous Cows – a programme to research on 'indigenous' cows. Thus the background of the question.

Key demand of the question:

The answer must discuss the reasons leading to depletion of Native breeds of cattle in the country, recommend measures to preserve them.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Start with some key facts related to the native breeds of the cattle; Cattle's rearing has been a traditional livelihood in India and is closely linked to agricultural economy. India, with its 199 million cattle heads, has 14.5 per cent of the world cattle population. Of this, 83 per cent (166 million) are indigenous.

Body:

Discuss the factors responsible for depleting breeds of cattle in the country such as – inadequate nutrition, poor reproductive management and animal diseases which is exacerbated by lack of effective support services such as animal husbandry extension, artificial insemination (AI) and/or veterinary services. Explain the efforts being made by the government in this direction; explain the Rashtriya Gokul mission, Scientific Utilization Through Research Augmentation-Prime Products from Indigenous Cows etc. Explain what more needs to be done to preserve the native breeds and highlight the benefits of the same.

Conclusion:

Conclude by reasserting the significance of preserving the native breeds.

**Introduction:**

India, one of the twelve mega biodiversity countries in the world, is home to large diversified cattle genetic resources, having 190.9 M cattle and so far 43 registered native cattle breeds. These cattle breeds are specially adapted to different agro-climatic conditions of India and their genetic diversity is due to the process of domestication over the centuries. The government has unveiled a programme to research on 'indigenous' cows. To be funded by multiple scientific ministries, the initiative, **SUTRA PIC or Scientific Utilization Through Research Augmentation-Prime Products from Indigenous Cows**, is led by the Department of Science and Technology (DST).

Body:

The National Bureau of Animal Genetic resources state that there are 41 registered breeds of cattle native to India. Based on their utility purpose, they are classified into milk breeds, draught breeds or dual purpose breeds. The indigenous breeds of cattle possess various unique characteristics such as the presence of unique genetic variation in HSP70 gene family, carry a 'thermometer gene' and presence of A2 allelic variant in cow milk, which makes them well adapted to the tropical climate

Reasons for depletion of native breeds of cattle:

1. Lack of fodder and grazing spaces, not much remuneration and change in mindset of people, adds to the woes of people in the cattle business.
2. The mechanization of farming and introduction of chemical fertilizers greatly impacted the draught breeds of cattle.
3. The other major reasons for depletion of native breeds includes **cross-breeding with exotic breeds, economically less viable, losing utility, reduction in herd size and the large-scale mechanization of agricultural operation.**
4. The **intense heat and humidity of the region** affects them and they are always sick.
5. They are **often pumped with antibiotics.**

Measures needed to conserve indigenous cattle:

1. **SUTRA PIC:** It has five themes:
 1. Uniqueness of Indigenous Cows.
 2. Prime-products from Indigenous Cows for Medicine and Health.
 3. Prime-products from Indigenous Cows for Agricultural Applications.
 4. Prime-products from Indigenous Cows for Food and Nutrition.
 5. Prime-products from indigenous cows-based utility items.
2. The conservation includes the preservation along with up-gradation (improvement) of the genetic potential and management of a breed for use in future.
3. The effective management of indigenous cattle resources includes identification, characterization, evaluation, documentation and conservation.
4. The future strategy should be to combine genetic improvement and conservation.



5. Establishment of regional gene banks and people's participation by involving breeders, communities, gaushalas, NGOs and other relevant stakeholders in conservation programs. For more effective conservation measures, proper coordination and integration among various agencies (ICAR, SAHD, SAUs, SVUs and Research Institutes) is highly needed.
6. **"National Consortium of Partners"** comprising different stakeholders should be formulated for conservation of indigenous breed resources with a holistic approach.

Conclusion:

There is a need to perform scientific research on complete characterization of milk and milk products derived from Indian indigenous cows; scientific research on nutritional and therapeutic properties of curd and ghee prepared from indigenous breeds of cows by traditional methods; development of standards for traditionally processed dairy products of Indian-origin cow.

The recent move of the union government to cap the premium on its flagship crop insurance schemes and making enrollment voluntary for these schemes will impact the agriculture sector in various ways. Discuss. (250 words)

Reference: [Indian Express](#)

Why this question:

The Centre has decided to restrict its premium subsidy in its flagship crop insurance schemes to 30% for unirrigated areas and 25% for irrigated areas (from the existing unlimited), and to make enrolment of farmers in the Pradhan Mantri Fasal Bima Yojana (PMFBY) and Restructured Weather Based Crop Insurance Scheme (RWBCIS) voluntary from the 2020 Kharif season. Thus the context of the question.

Key demand of the question:

The answer must discuss the impact of the measures taken by the union govt. on capping the premiums and making enrollment voluntary for flagship agri insurance schemes.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain the present schemes of insurance that are in existence.

Body:

The body of the answer must discuss the impact of the move – By capping the subsidy for premium rates up to 30%, the Centre wants to disincentivise certain crops in such areas where growing these crops involve high risks in terms of crop insurance premiums. While the average premium rate under PMFBY and RWBCIS at the national level was 12.32% for 2018-19, for some crops in certain districts, the rate of premium has been higher than 30% in recent years. For instance, the rate of premium for Kharif groundnut has reached 49% in Rajkot of Gujarat, and the rate for Rabi paddy crop Ramnathapuram (Tamil Nadu) has reached 42%. After the new changes come into effect, the share of the states is expected to go up in those states in which such crops are cultivated. As of now the schemes are compulsory for all loanee farmers and optional for other farmers. Non-loanee farmers under the crop insurance schemes are much fewer than loanee farmers. If the latter opt out of the schemes, the number of insured farmers will drastically come down.

Conclusion:

Conclude with multiple impacts that the move will bear on the agri sector of the country.

Introduction:

Telegram: <https://t.me/insightsIAStips>

Youtube: <https://www.youtube.com/channel/UCpoccbCX9GEIwaile4HLjwA>

Facebook: <https://www.facebook.com/insightsonindia>



Crop insurance is a vital component of agriculture, especially in a country such as India, where the majority of farmers are small and marginal with low savings that reduces their ability to weather agricultural risks and fluctuations. Recently the Centre decided to **restrict its premium subsidy** in its flagship crop insurance schemes to 30% for unirrigated areas and 25% for irrigated areas (from the existing unlimited), and to make enrolment of farmers in the Pradhan Mantri Fasal Bima Yojana (PMFBY) and Restructured Weather Based Crop Insurance Scheme (RWBCIS) voluntary from the 2020 Kharif season.

Body:

Impacts on the agriculture sector due to the proposed changes:

1. The states are already defaulting on their share, and the Centre's new cap will put an additional financial burden on them. Madhya Pradesh has not paid its share of premium even for Kharif 2018, which comes to Rs 1,500 crore.
2. As a result, **farmers have not got their claims.**
3. In fact, most states have delayed the payment of their share of premium. Sources said that in some states, the expenditure on premium of PMFBY is more than 50% of their budget for agriculture.
4. That move will lead to a rise in the rates of premium, as the area covered under insurance and the number of enrolled farmers are expected to come down significantly.
5. As of now the schemes are compulsory for all loanee farmers and optional for other farmers.
6. Non-loanee farmers under the crop insurance schemes are much fewer than loanee farmers.
7. If the latter opt out of the schemes, the number of insured farmers will drastically come down.
8. Sources say that in such a scenario, the rate of premium of certain crops in some areas may go beyond 30%.
9. The government has given flexibility to states/UTs to implement PMFBY and RWBCIS, and given them the option to select any number of additional risk covers/features like prevented sowing, localised calamity, mid-season adversity, and post-harvest losses. Earlier, these risk covers were mandatory
10. It may bring down the rates of overall premium as the state governments now will not be required to invite bids factoring these risks.
11. It will make these schemes less attractive for farmers.

Measures needed to ensure the success of Crop Insurance in India:

1. Ensure social audit
2. Utilise technology by digital money transfer to beneficiaries
3. Promote private sector participation in crop insurance segment like being done in Spain and Mexico, where government oversees agriculture insurance by private players
4. Using satellite, drones, etc. accurate and prompt data collection can be collected for providing insurance in various regions.



5. Accurate Weather forecasting using satellite imagery and advanced computer generated models can provide better and fast early warning to reduce losses.
6. Dispensing easy availability of internet to farmers will allow farmers to learn and implement new technology. Such as using Soil sensors that can broadcast real-time data about the state of the soil.
7. Improvement in Financial Services by Digitization of primary agriculture credit societies (PACs) and connecting them to district banks will allow easy loan and insurance disbursement. This will reduce exclusion as well as the delay in payments.

Food processing and related industries in India- scope and significance, location, upstream and downstream requirements, supply chain management. Land reforms in India.

Discuss the concept of Agricultural Protection Zoning (APZ). Explain in what way such methods can help control the extent of urban sprawls. (250 words)

Reference: [The Hindu](#)

Why this question:

The question is based on the concept of Agricultural Protection Zoning (APZ) and its significant contributions in curtailing the extent of urban sprawls.

Key demand of the question:

The answer must discuss the concept of Agricultural Protection Zoning (APZ) and its applications.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Briefly explain what you understand by Agricultural Protection Zoning (APZ).

Body:

APZ refers to local zoning codes, which include provisions such as large lot size requirements and use limitations, to separate farming and related activities from other land uses.

It helps preserve the availability of agricultural lands for farming and thus the agricultural base of the community, by constraining non-agricultural development and land uses in designated areas.

Discuss the case study relevant to the question – Tamil Nadu Chief Minister has announced that the Cauvery delta region comprising of eight districts would be declared as a Protected Special Agriculture Zone.

The eight districts include Thanjavur, Tiruvarur, Nagapattinam, Pudukottai, Cuddalore, Ariyalur, Karur and Tiruchirappalli.

The move is aimed towards preventing the implementation of oil exploration projects and other hydrocarbon projects in the Cauvery delta region and will help not only ensure food security of the State but also livelihood opportunities of the farmers and other agriculture-based laborers.

Explain how such step would address the issue of urban sprawls.

**Conclusion:**

Conclude with way forward.

Introduction:

Agricultural Protected Zone (APZ) is a designated zone where farming is the primary land use and discourages other land uses in those areas. It includes separation of farming and related activities from other land uses. It is used to preserve agricultural lands and protect working farms from conversion to non-farm uses by prohibiting or restricting development on agricultural lands. The Chief Minister of Tamil Nadu recently announced that the Cauvery delta region would be declared as Protected Special Agriculture Zone.

Body:**Significance of APZ in Cauvery Delta:**

1. PSAZ is aimed at protecting the Cauvery delta region for the future, fulfilling TN's food requirements and ensuring the welfare of delta farmers.
2. It has recognised farmer concerns about hydrocarbon exploration and accorded primacy to food security.
3. Since the delta region is close to the sea, there is a need to safeguard the region.
4. Zoning protects agricultural land by minimizing land use conflicts.
5. Effective agricultural zoning ordinances protect agricultural soils.
6. Agricultural Preservation Zoning prevents land uses that are incompatible with farming.

APZ can control extent of urban sprawl:

1. APZ helps reduce the conversion of agricultural lands into peri-urban areas.
2. It helps curb land uses that are incompatible with farming like landfills, airports, golf courses etc. APZ can help preservation of farmland and discourage development of land uses that are incompatible with agricultural uses.
3. It promotes and protects dependent rural communities through the enhancement, protection, and perpetuation of the agricultural land to produce food and provide livelihood to them by protecting property rights.
4. It helps curb the distress migration and the after-effects which includes Urban sprawl.

Conclusion:

APZ has the prospect of benefiting the farming community. It will help to ensure food security of the State and livelihood opportunities of the farmers and other agriculture-based labourers.

Pulses consumption in India is showing signs of flattening explain the possible underlying causes and suggest measures to address the issue. (250 words)

Reference: [Indian Express](#)

Why this question:

The question is premised on the article by Veteran agriculture economist Ashok Gulati wherein he explains stagnant consumption trend in both milk and pulses is largely due to incomes, which aren't rising as before.


Key demand of the question:

One must examine the underlying factors responsible for this food consumption alarm that raises alert about Indians consuming less pulses and milk. Also suggest measures to tackle the issue and address it with suitable and relevant measures.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:
Introduction:

State key facts brought out by the economist in the article.

Body:

Start by explaining the underlying causes of the issue – With rising income, the consumption of milk, pulses, eggs and meat had increased, especially among the poor. Flattening demand growth for protein-rich foods suggests incomes aren't raising as before, lack of branding for pulses etc. Take cues from the article and suggest what measures should be taken to overcome this challenge, parallelly highlight the ill-effects of such a situation. Suggest solutions.

Conclusion:

Conclude with need to urgently address the issue.

Introduction:

The National Statistical Office (NSO) withheld its household consumption expenditure survey report for 2017-18 but alternative data sources do suggest a slowdown in the pulses consumption in India. Flattening demand growth for protein-rich foods suggests incomes aren't rising as before.

Body:
Trends in pulses consumption:

- Between 2013-14 and 2017-18, it rose from 18.6 million tonnes (mt) to 22.5 mt, but fell to 22.1 mt in 2018-19 and is projected to further decline to 20.7 mt this year. Some of that may be attributable to prices.
- Thus, 2015-16 and 2016-17 recorded a consumption drop alongside double-digit dal inflation.
- The peak consumption in 2017-18 was when prices actually dipped 20.8 per cent year-on-year.
- The link between consumption and inflation, however, breaks down from 2018-19.

Flat pulse

| | Consumption (lakh tonnes) | CPI Inflation (per cent)* |
|---------|------------------------------|------------------------------|
| 2013-14 | 185.91 | 4.57 |
| 2014-15 | 199.02 | 7.91 |
| 2015-16 | 195.64 | 31.67 |
| 2016-17 | 186.90 | 10.93 |
| 2017-18 | 224.95 | -20.83 |
| 2018-19 | 220.99 | -8.20 |
| 2019-20 | 207.43** | 8.70*** |

*Average year-on-year; **Projected; ***Apr-Jan.

Source: IPGA, NSO.

Causes for reduction in pulses consumption:

Telegram: <https://t.me/insightsIAStips>

Youtube: <https://www.youtube.com/channel/UCpocbcCX9GEIwaile4HLjwA>

Facebook: <https://www.facebook.com/insightsonindia>



1. There was a perception which gained ground that pulses are expensive.
2. Vegetables also turned relatively cheap and consumers started having more of them in place of dal.
3. Egg has benefitted from branding, which is lacking in pulses.
4. Data from successive annual reports of the National Dairy Development Board shows that total liquid milk marketing by cooperatives — they account for the bulk of sales in this segment — has gone up from 201.03 lakh litres per day (LLPD) in 2008-09 to 294.44 LLPD in 2013-14.
5. The average annual growth of wages in rural India during 2014-15 to 2018-19 was only 5.3 per cent in nominal terms and 0.6 per cent after adjusting for consumer inflation of 4.7 per cent.

Measures needed to increase pulses consumption:

1. There is a need for National Egg Coordination Committee-like body for pulses to push consumption.
2. The campaign they launched in the 1980s helped in positioning egg as a wholesome nutrition food.
3. The time has come for a similar sustained drive promoting pulses as an excellent source of protein, micronutrients and fibre that is also low-fat and cholesterol-free.
4. New research efforts should be initiated to achieve a breakthrough in the productivity.
5. Innovative ideas need to be implemented instead of conducting routine research and material evaluation.
6. Scientists to work for development of shorter duration, widely adaptable and biotic and abiotic stress resistant varieties to boost the production of pulses.
7. Modernization of pulse breeding programme, supporting genetic gains through transgenic technology, enhancing biological nitrogen fixation through development of super nodulating plant types and breeding short duration varieties for achieving self-sufficiency in pulses.
8. Extension workers and agriculture technology information centers should work more towards development and dissemination of newer technologies

Conclusion:

The important role that pulses can play in **sustainable crop production systems, in particular through their contribution to improved soil fertility and to agro-biodiversity** along with **providing a balanced and healthy diet as evidenced by their use by the World Food Programme and other food aid initiatives** makes it a naturally optimal choice.



Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

Developing the rural infrastructure has a direct effect on the economic growth and wellness of the country; in such a context discuss the need to have a budget inclusive of tech infrastructure to cater these areas. (250 words)

Introduction:

Information and Communication technologies (ICT) have a potential for economic growth and social empowerment. Direct or indirect application of ICT, in rural development sector has also been referred to as "Rural Informatics". ICT tools are one of the most important requirement for the rural development in terms of delivery of service, delivery of information, governance, improving connectivity, market, health and education.

Body:

Significance of Rural Tech infrastructure:

- Use of modern scientific tools and techniques increased agricultural productivity manifold.
- Today, we are among the top producers of milk, wheat, rice and sugarcane.
- Latest remote sensing technologies have made the resource mapping and planning very effective in agriculture and forestry.
- With increased teledensity, ICT (Information, Communication & Technology) is making rapid inroads in rural India, revolutionalising the connectivity and information flow.
- This has opened a plethora of opportunities.
- Now ICT is being leveraged to plug leakages in the public distribution system and for better targeting of subsidies by way of Aadhar linked direct benefit transfers. It is used in tele-medicine, online study courses, e-Payments and what not.
- e-Technology can be effectively leveraged to fulfil the information needs of the rural populace such as providing weather and market related information.
- It can also be a good platform for online marketing of the artefacts produced by village artisans.

Spending on Rural Tech infrastructure of Government:

- The Government in the recent budget proposed an outlay of ₹8,000 crore over the next five years for setting up a National Mission on Quantum Technology and Applications.
- The government has already allocated ₹6,000 crore for Bharat Net, the Centre's work-in-progress rural broadband connectivity programme.
- However, the government's focus evidently lies on disruptive technologies such as artificial intelligence, Internet-of-Things (IoT), data analytics and quantum computing.

Need for an inclusive budget to have rural IT infrastructure:

- The government has been pushing every other service into the digital domain, forcing citizens to fill out forms electronically, access information online and communicate about grievances in real time via the Web.
- Telecom businesses are least interested in catering to the bottom of the pyramid when it comes to data business.
- Hence, it becomes the duty of the government to ensure villages have access to high-speed broadband.

Challenges in providing rural IT infrastructure:



- Government telcos have been a failure at providing fast Internet to the people.
- Anecdotal evidence shows that Bharat Net continues to proceed at a snail's pace.
- Lack of continuous Supply of Electricity.
- Low level of Digital Literacy: Rural India faces a severe technology deficit. The role of technology in solving problems is barely acknowledged, and the actual availability of technology in rural areas is, at best, marginal.
- Shortage of ICTs Personnel
- Unavailability of Web Content in Local Language

Conclusion:

Substantial investment is needed in physical infrastructure, power, broadband, transportation and education, particularly in rural regions and among the poorest populations in order to truly reap the benefits of the 4th Industrial Revolution.

“ Achieving the target of 30% electric mobility by 2030 looks challenging, and investment, innovation, research and development (R&D) across the right technologies will be key to achieve it ”. Discuss critically. (250 words)

Reference [Live mint](#)

Introduction

FAME India Phase II has been launched, with effect from 1 April 2019, with a total outlay of 10,000 Crore over the period of three years. Emphasis in this phase is on electrification of public transportation. The centre has sanctioned ₹8,596 crore for incentives, of which ₹1,000 crore has been earmarked for setting up charging stations for electric vehicles in India.

EVs hold enormous potential for India not only because it is environment friendly but also because India can emerge as a hub of manufacturing of EVs generating employment and growth opportunities. India has the capabilities to become the “**Detriot of EV's**”, as given by Economic Survey 2019.

Body

Indian consumer sentiment when it comes to EVs is improving, however, achieving 15% EVs within 5 years and 30% by 2030 is still faced by several challenges.

Challenges in achieving 30% electric mobility

- **The Economic survey 2019 noted that in India**, the limited availability of charging infrastructure seems to be a major impediment to increased adoption of EVs.
- Another major impediment is that of time taken for completely charging EVs, compared to conventional vehicles. Even fast chargers can take around half an hour to charge an electric car while slow chargers could take even 8 hours.
- It is equally important to provide information on public chargers to the users of EVs through online maps and other means such as physical signage.
- Range anxiety continues to be a major deterrent in EV adoption along with the challenge in achieving the convenience and the ease of use offered by traditional fossil-fuel-based vehicles.



- High initial cost, unavailability of an electricity grid system capable of meeting the demands of charging multiple EVs at the same time, as well as a limited public awareness regarding the benefits of e-mobility may hinder the widespread adoption of this technology.

Key to achieving the target

- **Investment**
 - **Electrification of the public & shared transport:** Government under FAME-II has planned to support 10 Lakhs e-2W (electric – 2 Wheeler), 5 Lakhs e-3W, 55000 4Ws and 7000 Buses.
 - **Demand incentives** on operational expenditure mode for electric buses will be delivered through State/city transport corporation (STUs)
 - Incentives will be given to 3-wheeler/4 wheeler vehicles used for public transport or registered for commercial purposes. In e-2Ws segment, the focus will be on the private vehicles
 - **Establishment of charging infrastructure**
 - About 2700 charging stations will be established in metros, million plus cities, smart cities and cities of hilly states across the country.
 - The need is to set up at least one charging station in a grid of 3km x 3km in the cities; and on both sides of highways connecting major city clusters at every 25km.
 - **Lithium :** India must invest in extraction of Lithium reserves by collaborating with Lithium triangle nations (Bolivia, Chile, Argentina). This will reduce the battery cost significantly.
- **Innovation and R&D**
 - **Fast Chargers :** are the need of the hour, especially if public transports are run on EV's for long distance.
 - **New energy vehicle (NEV) credit:** India must set a minimum requirement regarding the production of new energy vehicles (PHEVs, BEVs and FCEVs), with some flexibility offered through a credit trading mechanism in the car industry (ES 2019). **For eg,** in **China** every manufacturer is required to earn minimum NEV credits either through producing or importing NEVs or through the purchase of NEV credits from other manufacturers who have excess credit.
 - **Hybrid models :** An HEV has a conventional internal combustion engine propulsion system plus an electric propulsion system consisting of a battery and a motor. This makes HEVs heavy and expensive. There is a need for better and inexpensive models in this segment.
 - **Lithium ion batteries:** The battery management system plays a critical role in ensuring high battery performance while at the same time ensuring that the battery degradation is minimal, thus ensuring a long life for the battery. More R&D in this field will give India an edge in battery component manufacturing.



- **Fuel Cell Research Effort in India – R&D in Fuel Cells** – Fuel cells represent an emerging and exciting energy storage technology, both for stationary electricity storage as well as for electric vehicles. In India, a number of academic research efforts are ongoing in the fuel cell domain.

Conclusion

According to NITI Aayog (2019), if India reaches an EV sales penetration of 30 per cent for private cars, 70 per cent for commercial cars, 40 per cent for buses, and 80 per cent for 2 and 3 wheelers by 2030, a saving of 846 million tons of net CO₂ emissions and oil savings of 474 MTOE can be achieved. It also provides us an opportunity to grow as a manufacturing hub for EVs, provided policies are supportive. While various incentives have been provided by the government and new policies are being implemented, it is important that these policies not only focus on reducing the upfront costs of owning an EV but also reduce the overall lifetime costs of ownership.



Awareness in the fields of IT, Space, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.

Why does the European Commission want a temporary ban on facial recognition technologies in public spaces? What are its implications on the use of artificial intelligence? Discuss. (250 words)

Reference: [The Hindu](#)

Why this question:

Recently, European media network EURACTIV and Politico published a story that said the European Commission is mulling a temporary ban (of up to five years) on the use of facial recognition technologies in public spaces. Thus the question.

Key demand of the question:

The answer must discuss the implications of such decisions and its effect on the use of AI as a technology.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain what facial recognition is.

Body:

Explain the current case – Two big tech companies — Alphabet and Microsoft — have taken completely different positions on the idea. Alphabet CEO Sundar Pichai is backing it while Microsoft President Brad Smith is not. This comes even as facial recognition technologies are being increasingly adopted by individuals, organizations, and governments. Then move onto explain why does the European Commission want a temporary ban on facial recognition technologies? Discuss – how is facial recognition used in today's world? When is it problematic?

Conclusion:

Conclude by suggesting way ahead; point out to a middle path to address such concerns at the same time ensuring that the benefits of the technology are not forgone.

Introduction:

Automated Facial Recognition System (AFRS) works by maintaining a large database with photos and videos of peoples' faces. Then, a new image of an unidentified person — often taken from CCTV footage — is compared to the existing database to find a match and identify the person. The artificial intelligence technology used for pattern-finding and matching is called "neural networks".

Body:

AFRS in India:

- Facial recognition systems have been active at several major Indian airports, including the Delhi airport.
- These systems at airports have been installed under the DigiYatra initiative.
- Telangana's election commission piloted a facial recognition app in its civic elections on January 22, and claimed that it could address the issue of voter impersonation.

Concerns posed by AFRS:

- The European Commission is considering imposing a five-year moratorium on the use of facial recognition technologies in the European Union (EU).



- The European Commission believes that indiscriminate use of facial recognition technologies is a privacy threat, and some regulations are needed so that this does not easily give way to surveillance.
- It is increasingly being used for everything: from unlocking your phone to validating your identity, from auto-tagging digital photos to finding missing persons, and from targeted advertising to law enforcement.
- Cyber experts across the world have cautioned against government abuse of facial recognition technology, as it can be used as tool of control and risks inaccurate results.
- In the absence of data protection law, Indian citizens are more vulnerable to privacy abuses.
- Use of surveillance cameras and facial recognition constrict the rights of particular class of people.
- In the US, the FBI and Department of State operate one of the largest facial recognition systems.
- International organizations have also condemned the Chinese government on its use of surveillance cameras and facial recognition to constrict the rights of Uighurs, a mostly Muslim minority.

Implications on the use of artificial intelligence:

- The armed forces of US and China have already invested billions of dollars to develop LAWS, intending to gain strategic and tactical advantage over each other. This runs the risks of an arms race.
- There is no clearly stated policy document or vision statement for AI development.
- AI has to meet the first and foremost challenge of acceptability with the users from the government, public sector and the armed forces, or even the private sector.
- As users of AI, their interest in the technology augmenting their own ability, and not posing a threat, is quite pertinent.
- Technical competence in this fast-paced sector, primarily in the case of government, could be a road block.
- AI can better adapt to the goals and expectations of the Indian decision makers, if the technology development is indigenous. Foreign dependence in this case would be detrimental and unproductive.
- AI has set off an **economic and technological competition**, which will further intensify.
- **LAWS** operate without human intervention, and there is formidable challenge in distinguishing between combatants and non-combatants, which is a subject of human judgment.
- **AI powered bots** have also been used to influence humans perceptions, views and opinions. Such activities are rampantly being promoted through social media platforms for various ulterior purposes using fake news, unethical advertisements, etc. which then have huge negative consequences.
- **AI based weapons** are fast gaining currency. Since humans can be replaced by such machines, declaring war would become more convenient. These machines can wreak havoc if uncontrolled endangering the human race itself.
- AI is being used for **extensive surveillance** as in China which violates right to privacy. Such intelligence can be even used to selectively target and eliminate opponents which instill deep fear among people who would like to raise voice against injustice.
- Humans can pass on their limitations to robots. E.g.: biases, prejudices, discrimination, etc. A recent report in USA revealed that robot can be racist.

Conclusion:



The transformative capability of AI is huge, and must be rooted in an egalitarian ethical basis. Any institutional framework for AI should have a multidisciplinary and multi-stakeholder approach, and have an explicit focus on the ethical basis.

‘piracy is a global beast’, In this context, critically examine the challenges involved in the e-commerce sector with respect to the threats of counterfeits and piracy with special focus on India. (250 words)

Reference: [Hindustan Times](#)

Why this question:

E-commerce in India has seen phenomenal growth over the years — from \$39 billion in 2017, it is projected to rise to \$200 billion by 2026. The question is in such a backdrop where the growth of the e-commerce sector is a welcome thing on one hand, the issues associated with piracy is another.

Key demand of the question:

The answer must discuss in detail the challenges involved in the e-commerce sector with respect to the threats of counterfeits and piracy.

Directive:

Critically examine – When asked to ‘Examine’, we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgment.

Structure of the answer:

Introduction:

Briefly explain why Piracy is a global beast.

Body:

One has to explain in detail the fact that – Counterfeiting and pirated goods continue to distort the virtual marketplace. E-commerce sites are regularly being used as common platforms for the sale of counterfeit goods. Whether it is online or offline, the dangers are legitimate market loss and the occupation of economic space by unauthorized and grey market operators, causing loss of revenue to the government, loss of jobs, threat to consumer safety, and growth of organised crime. Highlight and list the challenges involved. Suggest solutions to address such challenges.

Conclusion:

Conclude by need to address the issue with a multi-pronged approach.

Introduction:

Piracy refers to the unauthorized duplication of copyrighted content that is then sold at substantially lower prices in the 'grey' market. The ease of access to technology has meant that over the years, piracy has become more rampant. E-commerce in India has seen phenomenal growth over the years — from \$39 billion in 2017, it is projected to rise to \$200 billion by 2026.

Body:

Challenges of Piracy in e-Commerce sector:

- Counterfeiting and pirated goods continue to distort the virtual marketplace.
- E-commerce sites are regularly being used as common platforms for the sale of counterfeit goods.
- The majority of copyright infringement is done through illegal reproduction of journals, magazines and books, video piracy, cable piracy, and imitation and distribution of computer programmes without the permission of the original copyright holders.



- Unlike the problem of physical piracy and counterfeiting, the piracy of content is easy and damaging.
- It is easy because the content of the original product is retransmitted and, therefore, there is no new creation, no infrastructure is required, no money is invested in creating content, and the same content of the same quality is made available to everyone for free.
- Whether it is online or offline, the dangers are legitimate market loss and the occupation of economic space by unauthorised and grey market operators, causing loss of revenue to the government, loss of jobs, threat to consumer safety, and growth of organised crime.
- when e-commerce players and brand owners get embroiled in disputes, it is the counterfeiters who reap the benefits.
- One of the greatest difficulties in tackling content theft and piracy is the jurisdictional challenge. While laws have national boundaries, piracy is a global beast. One can sit on a non-compliant jurisdiction, upload content, and make it available throughout the world. Indian laws will not be applicable in this case.

Measures needed:

- There is a need for constant upgradation and innovation to stay ahead of the counterfeiters.
- A big step has been taken by the government in bringing in the draft e-commerce policy, which has indicated clear guidelines on the expectations from brand owners and e-commerce players.
- It is the first time that a government document has listed concrete steps for combating counterfeiting.
- It categorically states that the details of sellers should be made available on a marketplace website for all products, and that sellers must provide an undertaking to the platforms about the genuineness of their products.
- Trademark owners should be given the option to register with an e-commerce platform so that wherever a trademark product is uploaded for sale on the platform, it should notify the respective trademark owner.
- If the trademark owner desires, the e-commerce platform can only list or offer for sale any of the owner's products only with prior permission.
- Additionally, in case of a customer complaint of counterfeiting after the sale, compensation will be paid and financial disincentives imposed on the seller found dealing in counterfeit products.

Conclusion:

It is important that we have regulations for e-commerce. Best practices need to be followed, technological tools and training of enforcement agencies needs to be done, the judiciary needs to be strengthened and more commercial courts opened to deal with the intricacies of IPRs, and to ascertain the extent of counterfeiting and piracy.



Conservation, environmental pollution and degradation, environmental impact assessment

The world's rivers are under unprecedented pressure from contamination, damming, and diversion, in such a situation International cooperation is the only way forward to saving of these rivers. Comment. (250 words)

Reference: [Live Mint](#)

Why this question:

The article explains that It will take global cooperation for us to save the world's rivers. It paints the bleak picture of the issues the world rivers are facing and what necessary steps are to be taken to address the issue.

Key demand of the question:

The answer must discuss the significance of global cooperation in saving the world rivers.

Directive:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

Highlight the significance of rivers in general to humanity and civilisations.

Body:

Briefly explain what the issue is. Discuss the specific issues that the rivers are facing globally. Take case studies such as of Ganga in India, damming of rivers in China and explain the various challenges and concerns. Suggest what needs to be done, highlight the importance of global cooperation to tackle the issue.

Conclusion:

Conclude by reasserting the significance of saving rivers.

Introduction:

World's rivers like the Tigris to the Indus and the Yangtze to the Nile, rivers were essential to the emergence of human civilization. Millennia later, hundreds of millions of people still depend on rivers to quench their thirst, grow food, and make a living. And yet we are rapidly destroying the planet's river systems, with serious implications for our economies, societies, and even our survival.

Body:

Threats and challenges faced by the rivers:

1. Dam-building frenzy and over-exploitation of rivers is wreaking environmental havoc.
2. Destroying forests, depleting biodiversity, and straining water resources.
3. Tapping long rivers for electricity generation.
4. The diversion of water for irrigation is also a major source of strain on rivers.
5. In fact, crop and livestock production absorbs almost three-quarters of the world's freshwater resources, while creating run-off that, together with industrial waste and sewage discharge, pollutes those very resources.
6. A point in case is of China where the first water census, released in 2013, showed that the number of rivers had plummeted by more than half over the previous six decades, with over 27,000 rivers lost.



7. In total, almost two-thirds of the world's long rivers have been modified, and some of the world's longest—including the Nile and the Rio Grande—now qualify as endangered.
8. Of the 21 rivers longer than 1,000km that still flow freely from their mountain sources to the sea, most are in remote regions of the Arctic and in the Amazon and Congo basins, where hydropower development is not yet economically viable.
9. The absence of water-sharing or cooperative-management arrangements in the vast majority of transnational river basins facilitates such destruction.
10. Many countries pursue projects without regard for their cross-border or environmental effects.

Impacts of over-exploitation of the rivers:

1. On ecosystem:

1. These trends strain water resources, destroy ecosystems, and threaten human health.
2. For example, heavy upstream diversions have turned the deltas of the Colorado River and the Indus River into saline marshes.
3. Lower river-water levels impede the annual flooding cycle, which in tropical regions helps to re-fertilize farmland naturally with nutrient-rich sediment.
4. In periods of below-average rainfall, a number of rivers increasingly run dry before reaching the ocean, and even when they do make it, they are depositing less of the nutrients and minerals that are vital to marine life.

2. On humans:

0. Humans are hardly exempt from the health consequences of river destruction.
 1. In Central Asia, the Aral Sea has all but dried up in less than 40 years, owing to the Soviet Union's introduction of cotton cultivation, for which water was siphoned from the sea's principal sources, the Amu Darya and Syr Darya rivers.
 2. Today, particles blown from its exposed seabed—thick with salts and agricultural chemical residue—not only kill crops; they are sickening local people with everything from kidney disease to cancer.
 3. Free-flowing rivers play a critical role in moderating the effects of climate change, by transporting decaying organic material and eroded rock to the ocean.
 4. This process draws about 200 million tons of carbon out of the air each year.

Measures needed:

1. One way to protect relatively undamaged river systems—such as the Amur, the Congo, and the Salween—would be to broaden implementation of the 1972 World Heritage Convention, and add these rivers to the World Heritage List, alongside Unesco World Heritage Sites.
2. This would be in line with recent efforts in some countries—Australia, Bangladesh, Colombia, India, and New Zealand—to grant legal rights to rivers and watersheds. For such initiatives to work, however, effective enforcement is essential.



3. As for the rivers that are already damaged, action must be taken to restore them.
4. This includes artificially recharging rivers and aquifers with reclaimed wastewater; cleaning up pollution; reconnecting rivers with their floodplains; removing excessive or unproductive dams; and implementing protections for freshwater-ecosystem species.

Conclusion:

The world's rivers are under unprecedented pressure from contamination, damming, and diversion. International cooperation can save them

Discuss the key findings of the "Future of the Earth report, 2020". Also discuss how it aims at reducing carbon footprint and halting global warming below 2 degree Celsius by 2050.(250 words)

Reference: [The Hindu](#)

Introduction:

The Future of Earth 2020 report has been released by the South Asia Future Earth Regional Office, Divecha Centre for Climate Change, Indian Institute of Science. The report was prepared with the aim of reducing carbon footprint and halting global warming below 2 degree Celsius by 2050.

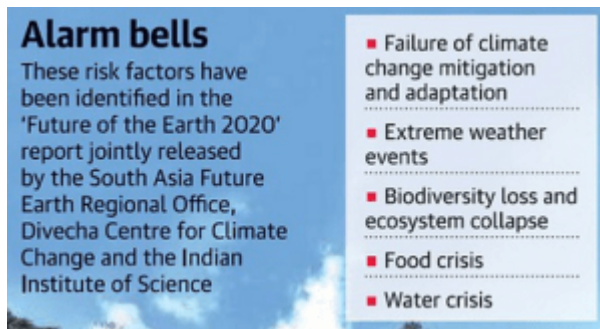
Key findings:

1. **Interrelation of risk factors:** Extreme heat waves can accelerate global warming by releasing large amounts of stored carbon from affected ecosystems, and at the same time intensify water crises and/or food scarcity.
2. **Biodiversity loss and its impact:** The loss of biodiversity weakens the capacity of natural and agricultural systems to cope with climate extremes, increasing our vulnerability to food crises.
3. The five years from 2014 to 2018 were the warmest recorded over land and ocean since 1880.

Five global risks:

The report lists five global risks that have the potential to impact and amplify one another in ways that may cascade to create a global systemic crisis. They are:

1. Failure of climate change mitigation and adaptation.
2. Extreme weather events.
3. Major Biodiversity loss and ecosystem collapse.
4. Food crises.
5. Water crises.



1. **Anthropogenic factors:** Humans have now “significantly altered” 75% of our planet’s land area; about a quarter of species in assessed plant and animal groups are threatened.
2. Strains on food production are expected to increase, as a result of various forces including climate change, biodiversity loss, and a global population on the rise.
3. **Denial of climate change:** Right-wing populism, a breed of politics that exploits people’s fears during times of economic decline and growing inequality, and that focuses on nationalist tendencies to clamp down on borders and reject immigrants, is on the rise around the world. This often leads to a denial of climate change facts or impacts.
4. **The digital platforms such as social media,** search engines and e-commerce algorithms, tend to favour the spread of information designed to engage with emotion over reason, which can cause the propagation of “fake news”, and can lead to social harms like an erosion of trust in vaccines.

It aims at reducing carbon footprint and halting global warming below 2 degree Celsius by 2050:

1. This provides an important and focused benchmark on the state of the climate, and an assessment of current efforts to limit global warming
2. The report received widespread public and media attention, and its findings continue to inform policy discussions across the world
3. It examines the pathways and options that might limit warming to 1.5°C and how response options might interact with sustainable development.
4. Although many countries have pledged to reduce their emissions under the UN Framework Convention on Climate Change Paris Agreement, the promised cuts are not enough to limit longer-term warming to 2°C, let alone 1.5°C.
5. Net-zero emissions are needed by 2050. This means that whatever emissions are produced by human activity must be balanced by the removal of greenhouse gases by natural systems (like plants) or negative emission technologies (like bioenergy or capturing and storing carbon).
6. The report assesses adaptation options that include constructing coastal barriers or planting mangroves to reduce the impacts of storms and sea-level rise; more efficient irrigation and water harvesting to conserve water; and designing buildings and planting trees to reduce urban temperatures
7. Increasing energy efficiency and renewable use help provide energy for all. Protecting forests to soak up carbon in places such as the Amazon and Indonesia can also support the goal of protecting biodiversity on land.



In India the National Education Policy will address the question of environmental health and education at the school level. ***“Children in the last four years of secondary education will have a reasonable grounding to be sensitive towards the environment. Without it no government rules and policies can be helpful,”***

Conclusion:

The UN Climate Change Summit in September 2019 called upon leaders to develop concrete, realistic plans to enhance their commitments to reduce climate risks by 2020 by reducing greenhouse gas emissions by 45% over the next decade, and to net-zero emissions by 2050, in order to limit warming to 2°C. The question is whether sufficient action will be taken, and whether humanity’s efforts to reduce warming will be compatible with sustainable development – without creating a bigger division of winners and losers.

What are Green Buildings? Do you think innovation in green buildings can help address the carbon challenge and harness an opportunity for sustainable development? Explain. (250 words)

Reference: The Hindu

Why this question:

The Bengaluru Smart City Limited (BSCL) has signed an MoU with CII’s Indian Green Building Council (IGBC) to give a boost to the Green Building Movement & Sustainable Development, and to facilitate greening of the city as per IGBC’s Green Cities Rating System.

Key demand of the question:

The answer must discuss the concept of Green building and in what way they can help in addressing the carbon challenge and attain sustainable development.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Define what Green buildings are.

Body:

A ‘green’ building is a building that, in its design, construction or operation, reduces or eliminates negative impacts, and can create positive impacts, on our climate and natural environment. Green buildings preserve precious natural resources and improve our quality of life. Then move onto discuss the salient features of Green buildings. Explain how green buildings can contribute to achieving the Sustainable Development Goals and address the carbon challenge of the world. Discuss the efforts being made by India on this front.

Conclusion:

Conclude that Green buildings can prove to be true catalysts for addressing some of the world’s most pressing issues.

Introduction:

A ‘green’ building is a building that, in its design, construction or operation, reduces or eliminates negative impacts, and can create positive impacts, on our climate and natural environment. Green buildings preserve precious natural resources and improve our quality of life. The Bengaluru Smart City Limited (BSCL) has signed an MoU with CII’s Indian Green Building Council (IGBC) to give a boost to the Green Building Movement & Sustainable Development, and to facilitate greening of the city as per IGBC’s Green Cities Rating System.

**Body:**

India's green building market is estimated to double by 2022 at 10 billion sq ft, valuing around USD 35-50 billion, driven by increasing awareness level, environmental benefits and government support.

Green buildings and sustainable development:

1. Efficient use of energy, water and other resources
2. Use of renewable energy, such as solar energy
3. Pollution and waste reduction measures, and the enabling of re-use and recycling
4. Good indoor environmental air quality
5. Use of materials that are non-toxic, ethical and sustainable
6. Consideration of the environment in design, construction and operation
7. Consideration of the quality of life of occupants in design, construction and operation
8. A design that enables adaptation to a changing environment
9. A green building's efficiency can be amplified by the adoption of innovative construction materials and better technologies.
10. These buildings rely on renewable resources, like sun, water and wind, minimize demand on non-renewable resources and maximize use through reuse and recycling.

Way forward:

1. In India, the growth of green buildings can be accelerated through standardization of norms, better incentive schemes, and a robust financial support system.
2. Increased awareness about green buildings and their long-term benefits will surely boost the green buildings sector and lead to the faster expansion of this very vital market segment.
3. growth of green building in India would be driven by increasing awareness, environmental benefits, government's support, subsidies and compulsions.

Conclusion:

Green buildings can improve the environment's ecology in numerous ways. It can reduce the energy consumption by 20-30 per cent, water usage by 30-50 per cent and significantly reduce waste generation by extensive recycling.

In what way will India's plans at UN Convention on the Conservation of Migratory Species of Wild Animals (CMS) help in sustainable management and conservation of migratory species? Give details.(250 words)

Reference: [Indian Express](#)

Why this question:

The article explains How India's proposals at UN event can help elephants, migratory birds.

Key demand of the question:

The answer must discuss the significance of such proposals made by our country that can help in sustainable management and conservation of migratory species.

Structure of the answer:



Introduction:

Briefly highlight the fact that – 13th Conference of the Parties to the CMS (CMS COP13), is under way in Gandhinagar, with “Migratory species connect the planet and together we welcome them home” as its theme.

Body:

Detail about the conventions in general first – CMS is a treaty agreed by 129 countries plus the European Union, and functions under the UN Environment Programme (UNEP). It works for protection and conservation of species that migrate across frontiers and are facing threats of extinction or require urgent attention. Explain what the convention aims to do. Then briefly explain Why do migratory species need special attention for conservation? List out the intended actions by India on this front – India has proposed inclusion of the three species on Appendix-I of the Convention. Appendix-I lists species threatened with extinction, while Appendix-II lists those in need of global cooperation for favorable conservation status. If listed on Appendix-I, it would facilitate trans-boundary conservation efforts of the species.

Conclusion:

Conclude by reasserting the significance of such measures.

Introduction:

Conservation of Migratory Species of Wild Animals (CMS) is a treaty agreed by 129 countries plus the European Union, and functions under the UN Environment Programme (UNEP). It works for protection and conservation of species that migrate across frontiers and are facing threats of extinction or require urgent attention. The 13th Conference of the Parties to the CMS (CMS COP13), which is under way in Gandhinagar, with “Migratory species connect the planet and together we welcome them home” as its theme.

Body:

India’s plans:

- India has proposed inclusion of the three species- **great Indian bustard, Asian elephant and Bengal florican**– on Appendix-I of the Convention.
- Appendix-I lists species threatened with extinction, while Appendix-II lists those in need of global cooperation for favourable conservation status.
- If listed on Appendix-I, it would facilitate **trans-boundary conservation efforts** of these species.
- India has also invited the COP13 to adopt the ‘Gandhinagar Declaration’ urging the world community to strive for ensuring ecological connectivity, especially for sustainable management and conservation of migratory species.
- The proposals cleared the first hurdle when they were adopted unanimously by the conference’s committee of the whole.
- However, Pakistan, which is the other range country of the great Indian bustard, did not take part in the discussion on the proposals.

India’s plans at CMS will help in sustainable management:

- Listing generally leads to concerted actions in different national jurisdictions in which a species ranges.
- Actions may include cooperation among range countries, harmonisation in policies etc through regional agreements.
- CMS has working groups specialising in various fauna families, and a Scientific Council that advises research-based solutions for conservation.



- Many countries started shifting towards renewable energy by building infrastructure like wind turbines, power transmission lines, solar parks; these pose risks to wildlife.
- CMS set up in 2014 an Energy Task Force; it advises contracting parties on how to keep their energy projects wildlife-friendly.
- Despite the listing and consequent efforts, 73% of 175 migratory species on Appendix-I and 48% of the 518 on Appendix-II have an overall decreasing population trend, CMS says.

Conclusion:

Besides the three species, proposals have been moved for including seven others — jaguar, urial, little bustard, antipodean albatross, oceanic white-tip shark, smooth hammerhead shark and tope shark — for listing on CMS Appendices. COP13 also discussed marine noise pollution, plastic pollution, light pollution, insect decline etc.

What are the major causes of Man – wildlife conflicts? What are the ways to prevent human animal conflicts? Explain. (250 words)

Reference: [Indian Express](#)

Why this question:

The article highlights the fact that Mitigating human-wildlife conflict must factor in incentives for local communities and presents a detailed case of Man-animal conflicts in the country.

Key demand of the question:

The answer must discuss in detail the major causes of Man –animal conflicts and the measures/methods to prevent.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Briefly explain what constitute Man-Animal conflicts.

Body:

Briefly discuss human-wildlife conflict and its impact. Present the case of India. Discuss – human population growth and expansion, habitat degradation and fragmentation, land use transformation and increasing densities of livestock grazing in protected areas are considered as major causes of man-carnivore conflicts. Suggest ways to prevent them; take cues from the article and list down solutions.

Conclusion:

Conclude that inclusive development with a long-term vision that cares for the environment is the best way forward.

Introduction:

Man-animal conflict is an existential crisis not only for the animals, but for human beings as well with data showing that about one person has been killed every day for the past three years by roaming tigers or rampaging elephants. India is a unique country with respect to wildlife conservation. Despite a billion people we still have most of our large wildlife species. Compared to relatively lower human density countries in south-east Asia, India today has the largest population of the tiger, Asian elephant, leopard, sloth bear, gaur and many others.

Body:



Major causes of man animal conflict:

- **Unsustainable development:**
 - Tiger reserves, national parks and sanctuaries exist only as islets in a vast sea of human, cattle and unsustainable land use.
 - People are increasingly encroaching into the country's traditional wild spaces and animal sanctuaries, where people compete with wildlife for food and other resources.
 - These conflicts have increased as elephants increasingly find their usual corridors blocked by highways, railway tracks and factories
 - Urbanisation and growth agendas alter landscape dynamics, which has a cascading effect on the ecological dynamics of wildlife. This results in ecological dislocation of sorts, wherein endangered wild animals like tigers either cause distress or land themselves in trouble
- **Failure of government measures:**
 - 'Human-Wildlife conflict mitigation' said most of the measures are dysfunctional, haphazardly implemented and therefore not effective
 - Elephants are used to travelling long distances, most of which fall outside the protected areas.
 - Wildlife experts claim that territorial animals do not have enough space within reserves and their prey do not have enough fodder to thrive on. This is forcing the wild animals to move out and venture close to human habitation in search of food.
- Primary reason for the increasing human-animal conflicts is the presence of a large number of animals and birds outside the notified protected areas. Wildlife experts estimate that 29 per cent of the tigers in India are outside the protected areas.
- Road kill of wild animals is the new enemy to India's wildlife
- There is no proper land use planning and management, cumulative impact assessments or wildlife management
- There is no buffer zone between wildlife and human settlements
- Monkeys along with grey langurs have adapted to urban habitats over the years.
- Continued destruction and divergence of forest lands.

Impacts of Man-wildlife conflicts:

1. Crop Damage.
2. Animal Deaths.
3. Loss of Human Life.
4. Injuries to People.
5. Injuries to Wildlife.



6. Livestock Depredation.

Government Initiatives to reduce the man-tiger conflicts are:

- **Awareness programmes** to sensitize the people about the Do's and Don'ts to minimize conflicts
- **Training programmes for forest staff and police** to address the problems of human wildlife conflicts
- Approach by **wildlife protection act, 1972** is that the model of conservation enshrined in is premised on **creating human-free zones for the protection of rare species based on the erroneous notion that local people are the prime drivers of wildlife decline**. This approach has been successful in protecting certain species, not all species.
- Providing **technical and financial support for development of necessary infrastructure and support facilities for immobilization of problematic animals**.
- Providing LPG to villagers: LPG should be provided to those villagers who frequently go to the forest areas specially wildlife habitats to fetch fuel wood for their chullahs so that they may stop penetrating into forest and stop inviting Man- Animal Conflicts.
- **State governments:**
 - Assistance to state government for construction of boundary walls and solar fences around the sensitive areas to prevent the wild animal attacks
 - Supplementing the state government resources for payment of ex gratia to the people for injuries and loss of life in case of wild animal attacks
 - Encouraging state government for creation of a network of protected areas and wildlife corridors for conservation of wildlife.
 - **Eco development activities in villages** around protected areas to elicit cooperation of local community in management of the protected areas.
 - Supporting involvement of the research and academic institutions and leading voluntary organisations having expertise in managing human wildlife conflict situations.
 - To control poaching: Poaching of wild animals should be stopped so that the no of wild animals can stabilize at its carrying capacity which would reach equilibrium in the ecosystem and this equilibrium between the numbers of prey animals and predators in the forest ecosystem would be maintained.
- **Technology:**
 - Information technology like radio collars, GPS, satellite uplink facilities are used by research institutions to monitor the movement of wild animals
 - Centrally sponsored schemes of project tiger, project elephant and integrated development of wildlife habitats
 - **Solar Fencing around agriculture fields:** Agriculture fields situated near wildlife habitat/forest areas can be protected by stone fencing or solar fencing. Solar fencing has been tried with quite good effect in Wardha District of Maharashtra.



Way Forward:

- **Forest corridors** linking protected areas must be maintained where they exist.
- Existing habitats have to be surveyed and improved to provide food for the elephants
- **Local communities** need to be educated to have reduced stress levels in elephants during conflict mitigation, no fire, no firecracker and no mob crowds.
- There is a need for a **monitoring mechanism** which will record and disperse information on such conflicts
- Experts suggest the other way to reduce the man-animal conflict is to increase the population of wild ungulates, namely hares and the wild boars, both of which are prolific breeders, as a prey for wild carnivores. Separate big enclosures can be made in the jungles to breed them. The excess stock can be released in the jungles at regular intervals for the wild carnivores to prey upon.
- The **draft National Forest Policy** will be an overarching policy for forest management. Also there is a proposal for National Community Forest Management (CFM) Mission which will be launched soon.

Conclusion:

In order to be truly effective, prevention of human-wildlife conflict has to involve the full scope of society: international organizations, governments, NGOs, communities, consumers and individuals. Solutions are possible, but often they also need to have financial backing for their support and development

What is the current status of the green building sector in India? Is the dream of making “GRIHA for Affordable Housing” a policy idea in the right direction? Comment. (250 words)

Reference: [The Hindustan Times](#)

Why this question:

The author talks about the idea of making the government’s policy of making affordable housing inclusive of the policy of green buildings.

Key demand of the question:

The answer must discuss the current status of the green building sector in India and the benefits of the idea of making affordable housing inclusive of green buildings.

Directive:

Comment– here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

Briefly present the current status of the green building sector in India.

Body:

State key facts related to Green buildings in the Indian context. A minuscule part of India’s built infrastructure is green buildings. However, one must understand that bulk of our infrastructure is yet to be built. So there is huge opportunity to make sure that we move on the correct green path. Briefly discuss the factors that have led to slow uptake on green buildings. Explain how – access to affordable housing which is vital for achieving various social objectives can also be utilized to achieve the environmental objective too. Discuss – “GRIHA for Affordable Housing”.

Conclusion:



Conclude that linking sustainability with quality rather than pricing can create opportunities for upcoming housing projects, especially since India's socio-economic milieu warrants different perceptions of affordability.

Introduction:

A 'green' building is a building that, in its design, construction or operation, reduces or eliminates negative impacts, and can create positive impacts, on our climate and natural environment. Green buildings preserve precious natural resources and improve our quality of life. The Bengaluru Smart City Limited (BSCL) has signed an MoU with CII's Indian Green Building Council (IGBC) to give a boost to the Green Building Movement & Sustainable Development, and to facilitate greening of the city as per IGBC's Green Cities Rating System

Body:

Current status of Green building sector in India:

- A minuscule part of India's built infrastructure is green buildings.
- The Indian Green Building Council started with a modest 20,000 sq. ft. green built-up area in India in 2003.
- By 2019-end, there were more than 5,723 green building projects registered under it, accounting for over 7.09 billion sq. ft.
- But most of these projects that seek the green tag are commercial spaces.
- Only 5-7% of the green building stock is of housing projects.

Need for affordable housing in India:

- In India, access to affordable housing is vital for achieving various social objectives, including poverty reduction.
- In 2012, urban housing shortage stood at 18.8 million units and is expected to grow at 6.6% to 34.1 million units by 2022.
- Unfortunately, popular perception associates sustainability with expensive technological advances.
- **Affordability**, however, lies at the very core of sustainability. Common sense entails that if something cannot be reduced, reused, repaired, rebuilt, refurbished or recycled, it should be restricted or removed from production.

GRIHA for affordable housing – a way forward:

- The "GRIHA for Affordable Housing" rating variant was designed specifically for this purpose, and outlines at length how factors such as climate responsive design help reduce energy demand (and by extension, the electricity bills incurred by residents) at no additional capital cost.
- GRIHA AH strives to break the myth of expensive green buildings and lays emphasis on cost-effective sustainability measures.
- India is a tropical country with a requirement for space cooling for much of the year in order to maintain bearable indoor temperatures, yet affordable housing is often conceived as being required to merely provide the very basics in terms of shelter and security for the economically-challenged sections of society.
- Unlike their counterparts in commercial or high-end residential projects, the occupants of affordable housing do not have access to expensive air conditioning equipment.



- GRIHA has always emphasised the importance of no-cost design interventions for enhancing performance and meeting thermal comfort through the manipulation of architecture and building material.
- Through the AH rating system, GRIHA envisions sustainable affordable housing as habitable spaces where the occupants have both the opportunity and the desire to reside beyond the short-term, which is conducive to their socio-economic development and respectful of the natural environment.
- Linking sustainability with quality rather than pricing can create opportunities for upcoming housing projects, especially since India's socio-economic milieu warrants different perceptions of affordability.
- The underlying idea is that people should be able to maintain comfortable living standards within affordable sustainable housing.

Measures needed:

- In India, the growth of green buildings can be accelerated through standardization of norms, better incentive schemes, and a robust financial support system.
- Increased awareness about green buildings and their long-term benefits will surely boost the green buildings sector and lead to the faster expansion of this very vital market segment.
- Growth of green building in India would be driven by increasing awareness, environmental benefits, government's support, subsidies and compulsions.

Conclusion:

At the Paris Climate Conference, India pledged to reduce the greenhouse emission (GHE) intensity of its gross domestic product by 33-35% over 2005 levels by 2030. One of the key sectors that need to be factored in to meet this target is the real estate. India's building stock is expected to double in the next 15 years and buildings are expected to emerge as the largest electricity consuming sector in the country. It is crucial that new buildings in the country are designed to be energy efficient and thermally comfortable.

Climate change impact warnings for Eastern Ghats high spot the need for forest protection as an ecological imperative, Discuss the serious threat Eastern Ghats are facing and suggest remedies. (250 words)

Reference: [The Hindu](#)

Why this question:

The article talks about the Climate change impact warnings for Eastern Ghats that underscore the need for forest protection.

Key demand of the question:

One must discuss the threats that Eastern Ghats are facing from climate change and the need for urgent actions to prevent and mitigate the same.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Highlight the importance of Eastern Ghats as a key ecosystem of the country; the crown jewels of India's natural heritage.

Body:



Quote some facts and figures that bring out the importance of the Eastern Ghats. Move onto explain why serious threat from climate change, and temperature variations are a cause for worry? Discuss briefly the role that the Eastern Ghats play as a niche ecosystem. Explain what measures are required to be taken to ensure the ecosystem is conserved and preserved. Discuss the efforts of the government in this direction.

Conclusion:

Conclude by reasserting the significance of preserving such a key ecosystem.

Introduction:

The broken hill-ranges of the Eastern Ghats, spread across Odisha, Telangana, Andhra Pradesh, Karnataka and Tamil Nadu, are home to unique ecosystems. Though it has over 450 endemic plant species, the region remains one of the most exploited and degraded ecosystems of India.

Body:

Significance of Eastern Ghats:

1. The Eastern Ghats are spread across 75,000 sq. km. from Odisha to southern Tamil Nadu.
2. The region receives an annual average rainfall of 1,200 mm to 1,500 mm. The discontinuous mountain range is mainly composed of deciduous forests.
3. Sustaining biodiversity: The Eastern Ghats are home to about 3,000 flowering plant species of which nearly 100 are endemic, occurring in the dry deciduous, moist deciduous and semi-evergreen landscapes.
4. Many animals, including tigers and elephants, and some 400 bird species are found in the region.
5. Sustaining the human inhabitants: The Eastern Ghats of Odisha, Andhra Pradesh and Tamil Nadu provide forest produce and ecosystem services to millions of human inhabitants.
6. The mountain range has a key role in modulating the climate of the region.

Concerns faced:

1. The forest protection policy has failed dismally with respect to the Eastern Ghats. The Eastern Ghats have shrunk by 16% over the past century, and just one region, Papikonda National Park, has lost about 650 sq. km. in two decades from 1991.
2. Reduced productivity: New research findings note that the Ghats may be facing a serious threat from climate change. The temperature variations are the major cause of worry.
3. A disruption of the annual average temperature and diminished rainfall would drastically decrease the productivity of these deciduous forests.
4. This implies lower biomass production in the region.
5. Reduced ability to store carbon: The decreased productivity would imply the forest's reduced ability to store carbon.
6. This would affect the carbon budget of the country and further aid Climate Change.



7. The reduced ability of the critical region of Eastern Ghats to store carbon would severely disrupt India's Reducing emissions from deforestation and forest degradation (REDD) targets and plans.
8. Disrupt the life of human inhabitants: The reduced carbon-storing ability would reduce the availability of wood, a major subsistence material for the human inhabitants.
9. Affecting Biodiversity: Existing data also reveals that areas experiencing rainfall deficiency and higher temperatures have witnessed reduced plant species diversity with herbs dominating the trees.

Way forward:

1. Human needs have led to extreme pressure on the limited forest resources.
2. Relieving the pressure on forests can be done through policies that reduce extraction of scarce resources and incentivise settled agriculture. The government should help the inhabitants pursue a different occupation and more sustainable lifestyles.
3. Given that India is committed, under the Paris Agreement on Climate Change, to create an additional carbon sink of 2.5 to 3 billion tonnes through enhanced forest and tree cover, afforestation is a policy prerogative for India.
4. India, however, needs to focus on scientific afforestation.
5. Schemes for the restoration of forest peripheries through indigenous plant and tree species could qualify for international climate finance and must be pursued.
6. Moreover, improving tree cover nationally will also confer other benefits, like the modulation of the monsoons, improved air quality and wider spaces for biodiversity to persist.
7. Schemes for restoration of forest peripheries through indigenous plant and tree species, matching national commitments, could qualify for international climate finance, and must be pursued.
8. At a broader level, the response to the warnings issued by researchers from IIT Kharagpur, International Crops Research Institute for the Semi-Arid Tropics and the University of Hyderabad in a recent publication on changes to temperature and rainfall calls for decisive steps to mitigate carbon emissions.

Conclusion:

Improving tree cover nationally is certain to confer multiple benefits, including modulation of the monsoon, improved air quality and wider spaces for biodiversity to persist. Given the multiple role Eastern Ghats play, it is necessary that government take necessary steps to preserve it.

Water is a crucial concern of public health and the ecosystem of a country, more so for a country like India. Examine. (250 words)

Reference: [The Hindu](#)

Why this question:

The controversy surrounding the Bureau of Indian Standards (BIS) report of November 2019 on drinking water status has politically prioritized the issue of water quality in India, thus the question.

Key demand of the question:



Discuss in the answer why water should be treated as an urgent concern for public health and the ecosystem of the country in detail. Explain with relevant data and justifications.

Directive:

Examine – When asked to ‘Examine’, we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Initiate the discussion by highlighting the importance of water as a public good, its importance for life in general.

Body:

Discuss that India is on the verge of a severe water crisis. India has witnessed a gradual reduction in per capita availability of water due to the rising population on the one hand and also the reducing availability of potable water, on the other hand, owing to rising and unchecked pollution in the country's rivers and water bodies. Quote data to substantiate such as – A 2018 Report of the NITI Aayog has observed that currently, 600 million Indians face high to extreme water stress. By 2030, the country's water demand is projected to be twice the available supply, implying severe water scarcity for hundreds of millions of people. Discuss the problems associated with water, explain why it can be a cause of public health concern? Suggest what needs to be done? Highlight the efforts of the government in this direction such as the Jal Jeevan mission etc.

Conclusion:

Conclude that Water should be treated as an urgent concern for public health and the ecosystem of the country. Notably, the Jal Jeevan Mission has begun the important work of gathering information on the scale and scope of the problem and making it available in an open and transparent manner and there is the need to further enhance technical knowledge on measurement and regulation of water quality in India.

Introduction:

The Bureau of Indian Standards (BIS) report was released in November 2019 on drinking water status for 21 major Indian cities, in keeping with the objectives of the ‘Jal Jeevan Mission’, which aims to provide safe piped water to all households by 2024. The study is scheduled to cover all districts in the country within a year. The Union Government wants to make BIS Standards mandatory for Tap Water so as to ensure quality drinking water for all households.

Body:

Current situation of drinking water in India:

1. More than 163 million Indians – higher than the population of Russia – do not have access to safe drinking water.
2. Irrespective of the source of water, in most parts of rural India, availability of water decreases dramatically in the summer months as the water levels drop and surface sources may dry up.
3. India's estimated per capita availability of water in 2025 will be 1,341 cubic metre. This may further fall to 1,140 cubic metre in 2050, bringing it closer to becoming water-scarce.
4. NITI Aayog's Composite Water Management Index 2018, India ranks 120 out of 122 countries.
5. India is ranked 13th among the 17 most water-stressed countries of the world.



6. According to the Ministry of Urban Development, 80% of India's surface water is polluted.

Challenges faced:

1. Climate change, increasing water scarcity, population growth, demographic changes and urbanization already pose challenges for water supply systems.
2. By 2025, half of the world's population will be living in water-stressed areas.
3. Re-use of wastewater, to recover water, nutrients, or energy, is becoming an important strategy.
4. Increasingly countries are using wastewater for irrigation – in developing countries this represents 7% of irrigated land.
5. While this practice if done inappropriately poses health risks, safe management of wastewater can yield multiple benefits, including increased food production.
6. Options for water sources used for drinking water and irrigation will continue to evolve, with an increasing reliance on groundwater and alternative sources, including wastewater.
7. Climate change will lead to greater fluctuations in harvested rainwater.
8. Management of all water resources will need to be improved to ensure provision and quality.
9. No binding to the BIS standard in India.
10. The solid waste which is dumped around, toxic industrial waste, and sewage among other factors contribute to pollution of the groundwater.
11. The dissolved solids cannot be removed by chlorination.

Impacts of poor water quality:

1. Contaminated water and poor sanitation are linked to transmission of diseases such as cholera, diarrhoea, dysentery, hepatitis A, typhoid, and polio.
2. Reduction in tourist inflow.
3. Bottled water gives rise to plastic pollution due to its demand
4. RO water is totally deprived of essential minerals and salts which is necessary.
5. Reverse osmosis during water purification also results in wastage of water.

Way forward:

1. This is the first time such a data is made public and attempt has been made to study drinking water at consumer level and we should do this very frequently.
2. Citizens should be sensitized about the issue.
3. The consumers, the service providers and the government should all be equally responsible of their responsibilities
4. Long-distance supply of water should be avoided.



5. Compliance to Bureau of Indian Standards for water quality should be made mandatory for local bodies.
6. Data based decision taking system.
7. Pipelines should be maintained properly.
8. Rainwater harvesting should be done.
9. Treatment plants have to be set up
10. We need to manage underground reservoirs.
11. Sampling methodology should be proper.
12. Boiling of water is good to just kill bacteria and is not effective towards dissolved solids and require additional chemical treatment.
13. Therefore, there has to be a holistic approach towards water supply and demand.

Disaster and disaster management.

Present the governance and administration for coastal disaster risk reduction and resilience in the country. (250 words)

Reference: [PIB](#)

Why this question:

The National Institute of Disaster Management, under Ministry of Home Affairs, organized a conference on understanding the different approaches in coastal disaster risk reduction and resilience on February 25. Thus the context of the question.

Key demand of the question:

The answer must discuss in detail the aspects of governance and administration for coastal disaster risk reduction and resilience in the country.

Structure of the answer:

Introduction:

Briefly explain what you understand by the coastal disaster risk reduction and resilience.

Body:

Discuss briefly the need of it – with 7,500 km-long coastline of India being threatened by many natural hazards resulting in the loss of life and property. About 40 per cent of total population of the country lives within 100 km of coastline. Among the coastal states, Odisha, Andhra Pradesh, West Bengal and Tamil Nadu are more vulnerable to coastal cyclone disasters as compared to other coastal states. Explain the governance mechanisms that are in place with respect to it. Highlight the scope, advantages, and limitations as well as issues, challenges, and opportunities in managing coastal disaster events including the ethical perspectives.

Conclusion:

Conclude with way forward.

Introduction:

Natural disasters are events caused by the forces of nature that adversely effect on human settlements, and environment. India has been witnessing increasingly more intense and frequent climatic events and climate-induced natural disasters in recent times. The country's fragile coasts are particularly vulnerable. Intense cyclones such as the recent Fani, Gaja and Hudhud as well as severe



floods have caused massive devastation to its coastal states, Odisha, Andhra Pradesh, Tamil Nadu and Kerala, respectively. most of these states are facing significant challenges in rebuilding the critical infrastructure lost and damaged, and in recovering from the consequent disruptions caused by disasters.

Body:

Recently, the first 'National Conference on Coastal Disaster Risk Reduction and Resilience (CDRR&R) – 2020' was held in New Delhi. The one-day conference was organised by the National Institute of Disaster Management (NIDM) focused on enhancing human capacity in terms of better understanding about coastal disaster risks and effective collaborative actions, by implementing Prime Minister's 10-point agenda and Sendai Framework for Disaster Risk Reduction, for reducing the risk and enhancing the resilience amongst the affected stakeholders.

India is the third worst-affected country due to climate- induced natural disasters. The country's coastal regions, in particular, are highly vulnerable because of rapid urbanisation, high population densities and related economic activities such as agriculture, aquaculture, tourism, industries and trade. The 7,517-km-long coastline is home to 260 million people or one- third of India's population, who live in low-lying areas within 50 km of the sea coast and are perennially exposed to climate variabilities and extreme weather events.

Governance and Administrative measures:

1. **The Disaster Management Act, 2005 (DM Act 2005)** lays down institutional and coordination mechanism for effective Disaster Management (DM) at the national, state, district and local levels.
2. As mandated by this Act, the Government of India (GoI) created a multi-tiered institutional system consisting of the **National Disaster Management Authority (NDMA)** headed by the Prime Minister, the **State Disaster Management Authorities (SDMAs)** headed by the respective Chief Ministers and the **District Disaster Management Authorities (DDMAs)** headed by the District Collectors and co-chaired by Chairpersons of the local bodies.
3. They established **Disaster Management Authority (DMA)**, built cyclone and flood shelters, invested in early warning systems, created Disaster Rapid Action Force, conducted public awareness campaigns, and created a disaster loss database under the Sendai Framework for Disaster Risk Reduction (SFDRR).
4. The **National Disaster Management Plan (NDMP)** provides a framework and direction to the government agencies for all phases of disaster management

Way forward:

1. There is a need to identify scope, advantages and limitations as well as issues, challenges and opportunities in managing coastal disaster events including the ethical perspectives.
2. There is a need to explore and debate the most recent advances in the discipline, to enhance the understanding of the issues and solutions on various facets for coastal disaster risk reduction and resilience.



3. Emphasis on dissemination of information related to national and local strategies for coastal disaster risk reduction and resilience as well as to develop a network mode roadmap for addressing the gaps by engaging with the institutions, researchers and experts.

Role of external state and non-state actors in creating challenges to internal security.

What steps has Indian been taking to protect itself from the menace of drug trafficking? Elaborate on the measures it is taking to realise its vision of a Drug-free India.(250 words)

Reference: [News On Air](#)

Background:-

1. The drug trafficking scenario in India is largely attributed to various external and internal factors.
2. One of the prime external factors happens to be India's close proximity to the major opium producing regions of South West and South East Asia known as the 'Golden Crescent' and the 'Golden Triangle', respectively.
3. The geographical location of India as such, makes it vulnerable to transit, trafficking and consumption of Opium derivatives in various forms along the known trafficking routes.
4. The major internal factors responsible are illicit cultivation of Poppy and the diversion from the licit Opium sources into illicit production in interior areas.

Major trends and patterns

1. Trafficking of Heroin from South West Asia to India and then from India to Sri Lanka, Maldives and other western countries.
2. Trafficking of hashish and cannabis from Nepal to India.
3. Suspected diversion of opium from licit cultivations and indigenous production of low quality Heroin.
4. Illicit cultivation of opium poppy.
5. Wild growth of cannabis.
6. Diversion of precursor chemicals and other controlled substances.
7. Diversion of pharmaceutical preparations and prescription drugs containing psychotropic and controlled substances and their smuggling to neighbouring countries.
8. Trafficking of drugs through illicit internet pharmacies and misuse of courier services.
9. Involvement of foreign nationals in trafficking and distribution networks.
10. Trafficking of Ketamine, an anaesthetic, from India to certain destinations in South East Asia.
11. Emergence of new psychoactive substances like Mephedrone in the country.

Steps has Indian been taking to protect itself from the menace of drug trafficking:



The Government has taken several policy and other initiatives to deal with drug trafficking problem.

1. It constituted Narco-Coordination Centre (NCORD) in November, 2016 and revived the scheme of **“Financial Assistance to States for Narcotics Control”**.
2. In 2017, the government approved new Reward Guidelines with increased quantum of reward for interdiction or seizure of different illicit drugs.
3. For effective coordination with foreign countries, India has signed 37 Bilateral Agreements/Memoranda of Understanding.
4. Narcotics Control Bureau has been provided funds for developing a new software i.e. Seizure Information Management System (SIMS) which will create a complete online database of drug offences and offenders.
5. The government has constituted a fund called “National Fund for Control of Drug Abuse” to meet the expenditure incurred in connection with combating illicit traffic in Narcotic Drugs; rehabilitating addicts, and educating public against drug abuse, etc.
6. The government is also conducting National Drug Abuse Survey to measure trends of drug abuse in India through Ministry of Social Justice & Empowerment with the help of National Drug Dependence Treatment Centre of AIIMS.
7. The Narcotic Drugs and Psychotropic Substances Act, 1985, prohibit a person to produce, possess, sell, purchase, transport, store, and/or consume any narcotic drug or psychotropic substance. The NDPS Act has since been amended thrice – in 1988, 2001 and 2014. The Act extends to the whole of India and it applies also to all Indian citizens outside India and to all persons on ships and aircraft registered in India.

Status of drug de-addiction centres:

1. Rampant irregularities and torture of inmates are prevalent at New Delhi’s de-addiction centres.
2. An inspection report submitted by Delhi State Legal Services Authority (DSLISA) revealed how inmates are being ill-treated, subjected to sexual and physical torture, asked to perform sexual favours, and not allowed to contact their families.
3. Most of the centres do not have adequate infrastructure, including toilets and ventilation.
4. The report also alleged some inmates have allegedly died from the torture they were subjected to.
5. The right of basic human dignity of persons desperately in need of care and treatment is being violated with impunity.
6. Violations of fundamental rights to life, liberty and dignity, as enshrined in Article 21 of the Constitution.
7. There are unauthorised and illegally run centres, charging money and subjecting such persons to inhumane and degrading treatment.

Concerns / Challenges:

1. The alarming increase of alcohol and drug addiction.



2. Drug abuse has become common in children and adolescents and causes serious ramifications on their physical and mental health and overall wellbeing.
3. The non-availability of government sponsored de-addiction centres is paving way for private centres to exploit patients.
4. Instead of medical care, “punishments” are meted out to patients, inflicting severe torture and, in some cases, causing death.
5. People seem to forget that drug users are human beings first. By using drugs a person doesn’t cease to be human.
6. Those who become chronic drug abusers have rare chances of complete de-addiction.
7. Proximity to the largest producers of heroin – the Golden Triangle and Golden Crescent (Afghanistan-Pakistan-Iran) -has made India’s border vulnerable to drug trafficking.

Way forward:

1. Prevention and solid support are the ways in which drug abuse can be dealt with.
2. Prevention programmes involving families, schools and the immediate communities are important in this regard.
3. Government must notify minimum standards for running de-addiction centres.
4. Fast track courts.
5. Integrating drug de-addiction centre’s with rehabilitation centres.
6. Unlicensed centres and those committing human rights violations must be liable to closure.
7. A chapter on the impact of drug abuse should be included in school curriculum so that children understand how addiction destroys lives of people.
8. Focused sensitisation programmes on drug abuse in schools and a substance abuse policy could go a long way in curbing the menace.
9. Parents must consult specialists in case there is change in behaviour of their children as it could be signs of drug abuse.

Challenges to internal security through communication networks, role of media and social networking sites in internal security challenges, basics of cyber security; money-laundering and its prevention.

Discuss in detail the components of Cyber Security. Explain various mechanisms available at the international level to handle it.(250 words)

Reference: [DSCI](https://t.me/insightsIAStips)

Why this question:

The question is straightforward and is from the static portions of the GS paper III.

Key demand of the question:



The answer must discuss the various components of Cyber Security; explain the mechanisms available at the International level to address it.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain what you understand by Cyber security.

Body:

Highlight the fact that, with recent reports – one of the highest numbers of cyber threats have been detected in India and the country ranks second in terms of targeted attacks. Although Banking and Telecom are the most attacked sectors but Manufacturing, Healthcare, and Retail have also faced a significant number of cyber-attacks.

Discuss the various components of Cybersecurity – Application Security, information security, Network Security, Disaster recovery planning etc.

Then move onto explain the mechanisms available to address the threats of cybercrimes at the international level and in the country.

Conclusion:

Conclude with a way forward.

Introduction:

Cyber security is a broad spectrum phrase and relates to preventing any form of unauthorized and malafide access to a personal computer, a laptop, a smartphone or a major network like the national banking system or the railway network or a national information technology asset that also has military implications.

Various components of Cyber security

Major areas covered in cyber security are:

1. **Application Security:** Application security encompasses measures or counter-measures that are taken during the development life-cycle to protect applications from threats that can come through flaws in the application design, development, deployment, upgrade or maintenance. Some basic techniques used for application security are:
 2. Input parameter validation,
 3. User/Role Authentication & Authorization,
 4. Session management, parameter manipulation & exception management, and
 5. Auditing and logging.
6. **Information Security:** Information security protects information from unauthorized access to avoid identity theft and to protect privacy. Major techniques used to cover this are:
 7. Identification, authentication & authorization of user,
8. **Disaster recovery:** Disaster recovery planning is a process that includes performing risk assessment, establishing priorities, developing recovery strategies in case of a disaster. Any business should have a concrete plan for disaster recovery to resume normal business operations as quickly as possible after a disaster.



9. **Network Security:** Network security includes activities to protect the usability, reliability, integrity and safety of the network. Effective network security targets a variety of threats and stops them from entering or spreading on the network. Network security components include:

10. Anti-virus and anti-spyware,
11. Firewall, to block unauthorized access to your network,
12. Intrusion prevention systems (IPS), to identify fast-spreading threats, such as zero-day or zero-hour attacks, and
13. Virtual Private Networks (VPNs), to provide secure remote access.

Mechanisms available to address the threats of cybercrimes at the international level:

An overview of intergovernmental bodies and initiatives currently addressing cyber security at the policy level.

1. **Council of Europe:** The Council of Europe helps protect societies worldwide from the threat of cybercrime through the Budapest Convention on Cybercrime, the Cybercrime Convention Committee (T-CY) and the technical co-operation Programme on Cybercrime. The Budapest Convention on Cybercrime was adopted on 8 November 2001 as the first international treaty addressing crimes committed using or against network and information systems (computers). It entered into force on 1 July 2004.
2. **Internet Governance Forum (IGF):** The IGF was established by the World Summit on the Information Society in 2006 to bring people together from various stakeholder groups in discussions on public policy issues relating to the Internet. While there is no negotiated outcome, the IGF informs and inspires those with policy making power in both the public and private sectors.
3. **United Nations (UN):** The International Telecommunication Union (ITU) is the specialized agency of the United Nations which is responsible for Information and Communication Technologies.
4. ITU deals also with adopting international standards to ensure seamless global communications and interoperability for next generation networks; building confidence and security in the use of ICTs; emergency communications to develop early warning systems and to provide access to communications during and after disasters, etc.
5. **Conferences on Cyberspace:** The London Conference on Cyberspace⁵¹ (1-2 November 2011) was meant to build on the debate on developing norms of behavior in cyberspace, as a follow-up to the speech given by UK Foreign Minister Hague at the Munich Security Conference in February 2011 which set out a number of “principles” that should underpin acceptable behavior on cyberspace.
6. **Meridian Process:** The Meridian process aims to provide Governments worldwide with a means by which they can discuss how to work together at the policy level on Critical Information Infrastructure Protection (CIIP). Participation is open to all countries and targets senior level policymakers. An annual conference and interim activities are held each year to help build trust and establish international relations within the membership to facilitate sharing of
7. **NET mundial Conference:** In reaction to spying and surveillance activity by National security agency of USA through PRISM, NETmundial – Global Multistakeholder Meeting on the Future of Internet Governance was organized in a partnership between the Brazilian Internet Steering Committee and /1Net, a forum that gathers international entities of the various stakeholders



involved with Internet governance. This meeting focused on the elaboration of principles of Internet governance and the proposal for a roadmap for future development of this ecosystem.

8. **The Global Cybersecurity Index (GCI)** is a survey that measures the commitment of Member States to cybersecurity in order to raise awareness.

Conclusion:

Cyber awareness must be spread and there should be multi-stakeholder approach- technological inputs, legal inputs, strengthening law enforcements, systems and then dealing with trans-border crime involves lot of international cooperation.

Examine the role of cybersecurity in securing digital India. (250 words)

Reference: [Analytics Training](#)

Why this question:

The question is direct and aims to examine the aspects of cybersecurity and its key role in securing digital India.

Key demand of the question:

The answer must discuss the role of cybersecurity in securing digital India.

Directive:

Examine – When asked to ‘Examine’, we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Explain the fact that in the twentieth century, India saw an impetus in Information Technology (IT) and an enormous growth in e-commerce. Both these sectors ride on and reside in cyberspace involving electronic transactions, software, services, devices and networks which are highly susceptible to cyber-crimes. Hence to ensure its safety, cyber-security has become one of the most compelling priorities for the country.

Body:

Define cybersecurity, explain the key aspects briefly.

Discuss the need for cybersecurity and provide for detailed analysis.

Highlight the challenges involved in ensuring cybersecurity.

Explain the efforts being made by government of India in this direction.

Conclusion:

Suggest way forward and conclude that For the success of government initiatives like Digital India, Make in India and Smart Cities cybersecurity is quintessential in any government policy.

Introduction:

The Indian government has embarked on a programme to turn the country into a digital economy. It has unveiled a series of initiatives—from introducing Aadhaar, MyGov, Government e-Market, DigiLocker, Bharat Net, Startup India, Skill India and Smart Cities to propel India towards technological competence and transformation.

The move towards a digital economy is likely to help trigger a fresh wave of economic growth, attract more investment, and create new jobs, across multiple sectors. However, it also poses a big challenge, that of Cyber Security.

India's recent Digital transformation



India is currently pursuing “an alternative and very exciting” route in which it is making the use of digital technology and digital records in public administration with new technologies, according to IMF.

1. India is one of the key players in the digital and knowledge-based economy, holding more than a 50% share of the world’s outsourcing market.
2. India is already the third largest hub for technology-driven start-ups in the world.
3. It’s Information and Communications Technology sector is estimated to reach the \$225 billion landmark by 2020.
4. Digital India program seeks to launch a large number of e-governance services across different sectors. These include education, healthcare and banking.
5. The number of mobile phone users in India is expected to rise to 730.7 million. The number of smartphone users in India is predicted to reach 340 million and could reach almost 468 million by 2021.
6. India has made a few achievements in e-governance projects such as Digital Locker, ebast, the linking of Aadhaar to bank accounts to disburse subsidies.
7. Bharat Net (erstwhile National Optical Fiber Network), the country’s digital infrastructure, has created a common service centre for each panchayat, for which all post offices and CSCs are to be upgraded.
8. India’s mobile wallet transactions were up nine-fold in two years to reach \$9 billion.

Need For Cyber security

1. To ensure critical infrastructure system do not collapse under any situation.
2. To ensure Business continuity.
3. For the success of government initiatives like Digital India, Make in India and Smart Cities.
4. To balance Individual’s rights, liberty and privacy.

Challenges involved in ensuring cyber security:

1. New technologies such as artificial intelligence, machine learning also face new challenges for cyber security.
2. Internet of things are often not built with security
3. New technologies aid hackers too.
4. We don’t have a cyber-security mindset. People still don’t understand cyber risks to an organization
5. Most of the cyber-attacks are not reported
6. Scarcity of cyber security professionals, especially at the leadership level.
7. Cyber bullies, extremists and terrorists are creating havoc within the system.
8. India is not a signatory to the Budapest convention which is the only multilateral convention on cyber security



9. No full time cyber security experts.

India's attempts to tackle these issues:

Information Technology Act, 2000

1. The act regulates use of computers, computer systems, computer networks and also data and information in electronic format.
2. The act lists down among other things, following as offences:
3. Tampering with computer source documents.
4. Hacking with computer system
5. Act of cyber terrorism i.e. accessing a protected system with the intention of threatening the unity, integrity, sovereignty or security of country.
6. Cheating using computer resource etc.

Strategies under National Cyber Policy, 2013

1. Creating a secure cyber ecosystem.
2. Creating mechanisms for security threats and responses to the same through national systems and processes.
3. National Computer Emergency Response Team (CERT-in) functions as the nodal agency for coordination of all cyber security efforts, emergency responses, and crisis management.
4. Securing e-governance by implementing global best practices, and wider use of Public Key Infrastructure.
5. Protection and resilience of critical information infrastructure with the National Critical Information Infrastructure Protection Centre (NCIIPC) operating as the nodal agency.
6. NCIIPC has been created under Information Technology Act, 2000 to secure India's critical information infrastructure. It is based in New Delhi.
7. Promoting cutting edge research and development of cyber security technology.
8. Human Resource Development through education and training programs to build capacity.

Cyber Surakshit Bharat Initiative: It was launched in 2018 with an aim to spread awareness about cybercrime and building capacity for safety measures for Chief Information Security Officers (CISOs) and frontline IT staff across all government departments.

National Cyber security Coordination Centre (NCCC): In 2017, the NCCC was developed. Its mandate is to scan internet traffic and communication metadata (which are little snippets of information hidden inside each communication) coming into the country to detect real-time cyber threats.

Cyber Swachhta Kendra: In 2017, this platform was introduced for internet users to clean their computers and devices by wiping out viruses and malware.

International cooperation: Looking forward to becoming a secure cyber ecosystem, India has joined hands with several developed countries like the United States, Singapore, Japan, etc. These agreements will help India to challenge even more sophisticated cyber threats.

**Way forward:**

1. Real-time intelligence is required for preventing and containing cyber-attacks.
2. Periodical 'Backup of Data' is a solution to ransomware.
3. Using Artificial Intelligence (AI) for predicting and accurately identifying attacks.
4. Using the knowledge gained from actual attacks that have already taken place in building effective and pragmatic defence.
5. Increased awareness about cyber threats for which digital literacy is required first.
6. India needs to secure its computing environment and IoT with current tools, patches, updates and best known methods in a timely manner.
7. The need of the hour for Indian government is to develop core skills in cyber security, data integrity and data security fields while also setting stringent cyber security standards to protect banks and financial institutions.

Conclusion:

The government must understand that when it comes to security of cyber space and building an incident response mechanism, it is essential to establish a mode of securing information and data. It is not only the laws dealing with cybercrimes that must exist, but the collection of appropriate cyber forensics data in various jurisdictions and their presentation in courts of law. It is critical to build incident management and sharing of information with a view to building an international incident response system. What Digital India needs now is having an incident response and transnational co-operation, including establishment of appropriate mechanisms for co-operation.

“Communication networks are a part of our critical information infrastructure”, in this context, what are the threats posed by communication networks to the internal security of India? Elucidate. (250 words)

Reference: [IDSA](#)

Why this question:

The question is from the static portions of the GS paper III.

Key demand of the question:

The answer must discuss the relevance of Communication networks as a part of our critical information infrastructure; explain the threats posed by them.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:**Introduction:**

Briefly explain what constitute communication networks.

Body:

Discuss how securing the networks are complicated by a number of factors.

Explain in what way threats are posed by communication networks to the internal security of India.

Highlight the efforts being made by the country to address these concerns.

Suggest solutions to address the challenges.

Conclusion:

Conclude by way forward.

**Introduction:**

Communication networks are a part of our critical information infrastructure which was defined in the IT Act, 2000 as “the computer resource, the incapacitation or destruction of which, shall have debilitating impact on national security, economy, public health or safety.” Communications networks are crucial to the connectivity of other critical infrastructure, viz. civil aviation, shipping, railways, power, nuclear, oil and gas, finance, banking, communication, information technology, law enforcement, intelligence agencies, space, defence, and government networks.

Threats posed by communication networks to the internal security of India:

1. **Used by terrorists** – Due to the easy availability and widespread use of communication networks, most of the terrorists use this medium to achieve their goals. Around 90% of the organized terrorism on the Internet takes place through the social media. The terrorist groups spread their messages through the sites like You Tube, Twitter or Facebook and recruit people via them. For example, the terrorist group of ISIS spreads their messages and activities through the social media.
2. **International users** – The other national and international users such as the political parties, NGO's, hackers pose a serious threat using the communication networks. For example, during the civil turmoil in the Arab Spring Uprising, the various governments were threatened through the social media.
3. **Communal Violence** – With the help of social media, people have started attacking each other's religion on this platform. Sensitive tweets regarding religion are becoming a common phenomenon. Circulation of certain pictures through communication networks also creates a panic among the masses. This is a threat to the internal security of the nation as it disturbs the communal harmony.
4. **Threat to internal security** – With the advent of social media, issues like economics, media and science are open to all. Uploading information related to these fields on the social networking sites can be a threat to the internal security.
5. **Revolution** – Some countries in the world feel threatened by the fact that social media can bring the people together and thus, create a revolution. This in turn can cause political instability.
6. **Virtual Community:** Popular communication networks websites are another means of attracting potential members and followers. These types of virtual communities are growing increasingly popular all over the world, especially among younger demographics. This can build Anti-national Sentiments among Society.
7. **Hacking:** Hackers write or use ready-made computer programs to attack the target computer. By using communication networks hackers breach the national security and steal important data of defence or other strategic sectors. This can kneel the whole country without using Arms and Ammunition.

Various measures undertaken to prevent the threats:**National Cyber Security Policy, 2013:**

1. The Government of India took the first formalized step towards cyber security in 2013, vide the Ministry of Communication and Information Technology, Department of Electronics and Information Technology's National Cyber Security Policy, 2013.



2. The Policy is aimed at building a secure and resilient cyberspace for citizens, businesses and the Government.

3. Its mission is to protect cyberspace information and infrastructure, build capabilities to prevent and respond to cyber-attacks, and minimize damages through coordinated efforts of institutional structures, people, processes, and technology.

Strategies adopted by the Policy include:

1. Creating a secure cyber ecosystem through measures such as a national nodal agency, encouraging organisations to designate a member of senior management as the Chief Information Security Officer and develop information security policies.
2. Creating an assurance framework.
3. Encouraging open standards.
4. Strengthening the regulatory framework coupled with periodic reviews, harmonization with international standards, and spreading awareness about the legal framework.
5. Creating mechanisms for security threats and responses to the same through national systems and processes. National Computer Emergency Response Team (CERT-in) functions as the nodal agency for coordination of all cyber security efforts, emergency responses, and crisis management.
6. Securing e-governance by implementing global best practices, and wider use of Public Key Infrastructure.
7. Protection and resilience of critical information infrastructure with the National Critical Information Infrastructure Protection Centre operating as the nodal agency.
8. To promote cutting edge research and development of cyber security technology.
9. Human Resource Development through education and training programs to build capacity.

Cyber Swachhta Kendra' (Botnet Cleaning and Malware Analysis Centre)

1. To combat cyber security violations and prevent their increase, Government of India's Computer Emergency Response Team (CERT-in) in February 2017 launched 'Cyber Swachhta Kendra' (Botnet Cleaning and Malware Analysis Centre) a new desktop and mobile security solution for cyber security in India.

Collaboration with industry partners:

1. Development of Public Private Partnerships is an important strategy under the National Cyber Security Policy 2013. Pursuant to this aim, under the aforementioned Cyber Swachhta Kendra initiative, antivirus company Quick Heal is providing a free bot removal Tool.

International Cooperation Initiatives:

1. Information sharing and cooperation is an explicit strategy under the 2013 Policy.
2. Consequently, as an answer to the increasing international nature of cybercrime, the Indian government has entered into cyber security collaborations with countries such as the USA, European Union and Malaysia.



3. The government is drafting guidelines that will bind companies such as Twitter, WhatsApp, YouTube and Facebook to respond to complaints over content in a “few hours” as against the current norm of 36 hours.

Existing regulations on communication networks:

1. In India, social media platforms already come under the purview of the Information Technology (IT) Act, the ‘intermediary’s guidelines’ that were notified under the IT Act in 2011 and the Indian Penal Code.
2. Under existing laws, social media channels are already required to take down content if they are directed to do so by a court or law enforcement.
3. There are also reporting mechanisms on these platforms, where they exercise discretion to ascertain whether a reported post is violating community guidelines and needs to be taken down.
4. These, however, have been reported to be arbitrary – many posts on body positivity and menstruation, for instance, have been taken down in the past while other explicit imagery continues to be allowed.
5. Many of the existing regulations themselves are “dangerously close to censorship and may have a chilling effect on freedom of speech, which is why cases are being fought on those in courts.”
6. Another problem of a lot of regulatory measures is the vagueness of language which is exploited by state agencies to behave in a repressive way.

Conclusion:

Experts have suggested the setting up of a National Cyber Security Agency (NCSA) to address cyber security issues and improve implementation at a national level. Such an agency is suggested to be equipped with staff that is technically proficient in both defensive and offensive cyber operations, to encrypt platforms and collect intelligence. Another proposed measure is setting up of a National Cyber Coordination Centre (NCCC) as a cyber-security and e-surveillance agency, to screen communication metadata and co-ordinate the intelligence gathering activities of other agencies.

What is Money Laundering? How does Money Laundering work? Discuss various steps taken by government of India to prevent money laundering. (250 words)

Reference: [Legal Service India](https://www.legalserviceindia.com/)

Why this question:

The question is from the static portions of the GS paper III.

Key demand of the question:

The question aims to evaluate in detail about money laundering- definition, purpose, means etc. It also wants us to discuss the available policies such as PMLA to tackle the same.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain what Money Laundering is.

Body:

Write a few lines about the meaning of money laundering- e.g Money laundering is the process of creating the appearance that large amounts of money obtained from criminal activity, such as drug



trafficking or terrorist activity, originated from a legitimate source. The money from the illicit activity is considered dirty, and the process “launders” the money to make it look clean.

Discuss the steps in money laundering- Placement-criminally derived funds are introduced in the financial system; Layering-the property is ‘washed’ and its ownership and source is disguised; Integration-‘laundered’ property is re-introduced into the legitimate economy; This three staged definition of money laundering is highly simplistic. The reality is that the so-called stages often overlap and, in some cases, for example in cases of financial crimes, there is no requirement for the proceeds of crime to be ‘placed’. Briefly explain how globalization impacts money laundering. Examine the recent policy efforts taken by the government – India is a full-fledged member of the Financial Action Task Force (FATF), PMLA 2002, and Financial intelligence unit -IND etc.

Conclusion:

Conclude with way forward.

Introduction:

Money laundering is the process of creating the appearance that large amounts of money obtained from criminal activity, such as drug trafficking or terrorist activity, originated from a legitimate source. The money from the illicit activity is considered dirty, and the process “launders” the money to make it look clean.

How does Money Laundering Work?

A case of Money laundering ostensibly appears to be an above-board financial transaction, however, the criminality underneath is hidden by a three stage process:

1. **The first stage** is when the crime money is injected into the formal financial System. This is called ‘placement’;
2. **In the second stage**, money injected into the system is layered and spread over various transactions with a view obfuscate the tainted origin of the money. This process is called ‘layering’;
3. **In the third and the final stage**, money enters the financial system in such a way that original association with the crime is sought to be obliterated so that the money can then be used by the offender or person receiving as clean money. This is called ‘Integration.



Efforts of Government of India to address money laundering:

In India, before the enactment of Prevention of Money Laundering Act, 2002 (PMLA) the major statutes that incorporated measures to address the problem of money laundering were:

PMLA Act:

1. It prescribes obligation of banking companies, financial institutions and intermediaries for verification and maintenance of records of the identity of all its clients and also of all transactions



and for furnishing information of such transactions in prescribed form to the Financial Intelligence Unit-India (FIU-IND).

2. It empowers the Director of FIU-IND to impose fine on banking company, financial institution or intermediary if they or any of its officers fails to comply with the provisions of the Act as indicated above.

3. PMLA envisages setting up of an Adjudicating Authority to exercise jurisdiction, power and authority conferred by it essentially to confirm attachment or order confiscation of attached properties.

The Black money (undisclosed foreign income and assets) and Imposition of Tax Act, 2015:

1. To deal with the menace of the black money existing in the form of undisclosed foreign income and assets by setting out the procedure for dealing with such income and assets.

Benami Transactions (Prohibition) Amendment Bill, 2015:

1. It aims to expand the definition of Benami Transactions and specifies the penalty to be imposed on a person entering into a Benami transaction.

Institutional framework:

Enforcement directorate:

1. PMLA empowers certain officers of the Directorate of Enforcement to carry out investigations in cases involving offence of money laundering and also to attach the property involved in money laundering.

Financial Intelligence Unit:

1. It was established in India in 2004 as the central national agency responsible for receiving, processing, analyzing and disseminating information relating to suspect financial transactions.
2. FIU-IND is also responsible for coordinating and strengthening efforts of national and international intelligence, investigation and enforcement agencies in pursuing the global efforts against money laundering and related crimes.
3. FIU-IND is an independent body reporting directly to the Economic Intelligence Council (EIC) headed by the Finance Minister.

Way forward:

1. Make common people more aware about the problem- The poor and illiterate people, instead of going through lengthy paper work transactions in Banks, prefer the Hawala system which needs to be stopped.
2. Fulfilling the purpose of KYC Norms by doing proper KYC.
3. Establishment of comprehensive enforcement agencies
4. Promote cashless digital transaction

Conclusion:

The Indian government is serious about curbing money laundering so India has to focus on financial literacy education so that people are aware.



Modern computing devices are not safe when it comes to the issue of security vulnerabilities in technology use. Do you agree? Examine. (250 words)

Introduction

Jeff Bezos who is the founder of Amazon and world's richest man became a victim of phone hacking, showcases that security vulnerabilities of modern devices and technology are ubiquitous in nature.

Body

Security Vulnerabilities and Techniques to exploit them

- **Spyware: Pegasus**, a spyware was in news and according to WhatsApp, the spyware was **deployed on at least 1,400 targets**, including lawyers, activists, dissidents and diplomats. The Pegasus spyware is also known to have been used **against several Indian journalists and activists**.
 - Sensitive information were extracted from the target users' phone.
- **Denial of Service : Saposhi Malware** is capable of taking over electronic devices and turning them into bots (device taken over by malware) which can then be used for any purpose, including DDoS attacks which, with enough firepower, can cripple entire industries.
 - It overloads the server, rendering it non-responsive.
- **Ransomwares** : It is a type of malware that prevents users from accessing their system or personal files and demands ransom payment in order to regain access. **Eg : WannaCry, Petya**
 - This can have a serious harm to critical government infrastructure and it's data security.
- **Hacking** : It can occur through phishing, spam mails that mask virus as executables or exploiting a badly written code in the software
 - Eg : The Ring security system(camera) of Amazon was hacked in USA, and hackers used a racial slur on a child through the camera.
- **Using old Operating Systems** : Eg : ATM's with windows XP became vulnerable to network spoofing.

Steps to address these issues

- **At user-level**
 - **Basic Security Hygiene** : Not visiting untrusted websites, installing untrusted third party applications or certificates, keeping device and application software updated is needed.
 - **Using licensed software**: Users must ensure pirated software are not used and also update latest security patches to their devices.
 - **Non-disclosure of sensitive information**: Awareness to ensure people are not deceived by unscrupulous actors regarding confidential information. **Eg: Bank Login, OTP, debit/credit card details.**
 - **Using trusted software**: Users must not give unbridled access to phone's content to suspicious apps.



- **Two-layer authentication:** Strong passwords with OTP login can help secure devices, apps from unauthorized access.
- **At Government level: Initiatives**
 - **CERT-IN is the national nodal agency to respond in crisis situation.**
 - **CERT-fin** has also been launched exclusively for financial sector.
 - CERT-in is also operating **Cyber Swachhata Kendra**, a Botnet Cleaning and Malware Analysis Centre
 - **National Critical Information Infrastructure Protection Centre (NCIIPC)** to battle cyber security threats in strategic areas such as air control, nuclear and space.
 - **Cyber Surakshit Bharat** Initiative to strengthen Cybersecurity ecosystem in India. It is first public private partnership of its kind and will leverage the expertise of the IT industry in cybersecurity.
 - National cyber coordination centre (**NCCC**) to scan internet traffic coming into the country and provide real time situational awareness and alert various security agencies.
 - Cyber Forensic Lab set up in Bangalore, Pune, Kolkata in collaboration with NASSCOM.

Conclusion:

Device Security must be enhanced through continuous research and development to create secure hardware and software. Meanwhile user awareness is equally necessary to prevent them from becoming victims of cybercrime.

Discuss the role of media and social networking sites in internal security challenges.
(250 words)

Reference: [IDSA](#)

Why this question:

The question aims to analyse different internal security threats arising from social media and social networking sites.

Key demand of the question:

The answer must discuss the role of media and social networking sites in internal security challenges of the country.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly define what constitutes social media.

Body:

First highlight the fact that Media is considered as influential channel for effective communication. It supports in promoting the right things on proper time. It provides a real exposure to the mass viewers about right or wrong process.

Then move onto discuss the challenges that it poses.

Discuss Social media as a threat to national security; explain how it aids propagate fundamentalism, fake news etc.

Suggest how government should tackle these issues.

**Conclusion:**

Conclude with way forward, suggesting suitable solutions.

Introduction:

Today the Media and Social media has created a borderless world while it's reach is ubiquitous. **Media** are the communication outlets or tools used to store and deliver information or data. The term refers to components of the mass **media** communications industry, such as print **media**, publishing, the news **media**, photography, cinema, broadcasting (radio and television), and advertising. The term "social media" refers to internet-based applications that enable people to communicate and share resources and information. While they have enabled faster communication, there are many challenges associated with them as well.

Body**Role of Media**

Media is considered as influential channel for effective communication. It is the **fourth estate of democracy**. Media helps the people to be aware about and develop a consensus upon important national and international development issues. It also helps them understand the various obstacles in the process of development. imbining basic skills among the people.

Challenges to Internal Security

- **Unverified News:** In recent times because of proliferation of news channels, dissemination of unverified news and one sided information by some unscrupulous news channels have emerged.
 - Such actions of media have negative impact on long term internal security.
- The concept of **breaking news** have many a times detrimental effect on National Security. **Amplifying the fear factor** through news reporting, live telecast of sensitive information are some of the concern areas here.
 - For example, during the time of Mumbai terror attacks TV channels live telecasted operations by security forces.
- Extreme focus on **TRP** has led to media highlighting **divisive issues**. This can lead to sectarian violence or communal riots.
- This has also been aggravated by spread of social media which is taking the shape of public sourced media and also as a barometer of acceptance & popularity.
 - This has made media houses ignore objective reporting and playing to the tunes of masses who don't have knowledge of long term ill-effects of such things.

Role of Social Media

There are more than **500 million internet users** in India and today social media is not only a subset of internet rather the internet itself.

Challenges to Internal Security

- **Flash Crowds:** The Spread of social media and cell phones has created the phenomenon of 'flash crowds'.
 - **Eg: Lynching, rioting based on rumours.**



- **This was seen at the site of encounters in Kashmir Valley.**
- **Propaganda:** In addition, social-media platforms like face book, WhatsApp and you tube are being used to great advantage to carry out propaganda.
 - **Burhan Wani**, whose killing led to a bout of violence in the Kashmir valley was a creation of internet and facebook.
 - It is being used for promotion of violence, recruitment, incitement and **radicalization**.
 - It can instigate violence against communities as well.
- **Recruiting youth for Terror outfits:** The **ISIS** recruited youth from Maldives, Bangladesh, United Kingdom to fight in the Syrian War, through social media.
 - Training is imparted through social-media for youth to carry out militancy.
 - Increasing IS sympathizers through pro-IS content distributed online.
- **Fake news with malicious intent:** Manipulation through the social media allegedly spurred the mass exodus of north east Indians in Bangalore in 2012.
- **Money Laundering and organized crime** are increasingly happening through online activity covertly.
 - Concept of **Money Mules:** Unsuspecting individuals are recruited as 'money transfer agents' (mules) to avoid high transaction charges or local taxes. This leads to wiring huge amounts from offshore accounts to the money mule.
- **Drug Peddling:** The **Dark Web** is the hub of smuggling drugs illicitly. The problem has exacerbated with cryptocurrencies like bitcoin, ripple, ethereum.
- **Other Challenges posed by social media**
 - **Accountability issues:** Challenges with respect to fixing the liability of intermediaries. It is also difficult to trace the origin of fake news circulation.
 - **Jurisdictional challenges:** Complications in jurisdiction as Facebook, twitter etc. operate as subsidiaries of foreign internet companies with their servers located outside India.
 - **Anonymity:** Police officers have expressed concern over multiplicity of fake profiles. There is no accountability of a crime.
 - **Encrypted Message:** Use of whatsapp to send and receive messages, concerns the government because the communications sent via such devices and applications are encrypted.

Way Forward

- **Auto-filters:** They must be put in place to detect and remove messages with violence, hatred and anti-nationalism.
- **Self-Regulation and enforcement:** The media houses must evolve their own code of ethics and self-regulation mechanisms through which actions against those acting against the interest of the national security can be taken. If need be, stringent laws must be made.



- Governments must also be proactive and must continuously provide immediate, accurate and reliable information so that public is not influenced by sensational and biased news reporting.
- **Proactive web monitoring:** The Mumbai Police has launched a project called “**Social Media Lab**” to check explosive content on various platforms and quell fake news.
- Initiatives such as ‘**WhatsApp’s Checkpoint Tipline**’, ‘**The Logical Indian**’ should create user awareness regarding fake news.
- **Crisis Protocols:** Creating a crisis protocol for responding to emerging or active events, on an urgent basis, so relevant information can be quickly and efficiently shared, processed, and acted upon by all stakeholders with minimal delay.
- **Global cooperation: Christchurch Call of Action** outlined voluntary commitments from governments, ISP’s to address issue of violent extremist content online. India is a signatory to this plan

Conclusion:

The press has always acted as a medium of communication between the public and the leaders. Social media add another dimension to the existing media by making the two-way channel of communication more efficient.

But, there is a need to overcome the Digital Anarchy to protect against internal security challenges. Developing a well-operated online intelligence network for intelligence sharing, joint online operations and database convergence to keep a check on social-media posts is the need of the hour.

What is Darknet? Discuss the key challenges involved in fighting the Darknet. Also suggest strategy to deal with it. (250 words)

Reference: [The Hindu](#)

Why this question:

The question is straightforward and aims to analyse the key challenges involved in the applications of Darknet and the prevalent misuse of it.

Key demand of the question:

The answer must discuss the challenges involved in fighting the Darknet while suggesting strategy and solutions to deal with it.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Explain what Darknet is.

Body:

Dark Net is an umbrella term describing the portions of the Internet not open to public view or hidden networks whose architecture is superimposed on that of the Internet. Explain what are the challenges involved with it; Misuse: Computer crime (hacking, file corruption etc.), Sale of restricted goods on Darknet markets, File sharing (personal files, pornography, confidential files, illegal or counterfeit software etc.) The Dark Web is often used by individuals who want to preserve anonymity. That includes criminals, terrorists and state-sponsored spies. The Dark Web does contain websites selling illicit goods, including drugs etc. Discuss why it is difficult to tackle – virtual presence, no restricted geographical boundaries etc. Suggest solutions to address the challenge like – Introduction of technology-savvy youngsters into the cyber department in large numbers, Hiring of experienced foreign law-enforcement professionals, who have experience in similar operational security and applicable law.

**Conclusion:**

Conclude by reasserting upon the need to address the issue with greater urgency.

Introduction:

Dark Net (or Darknet) is an umbrella term describing the portions of the Internet not open to public view or hidden networks whose architecture is superimposed on that of the Internet. Darknet provides anonymity to the users. Darknet is often associated with the encrypted part of the Internet called Tor network where illicit trading takes place such as the infamous online drug bazaar. A variety of Darknet markets (black markets) allow for the anonymous, illegal buying and selling of drugs and other illegal or controlled substances, such as pharmaceuticals, and weapons. The services and websites running on the Darknet is the dark web.

Body:**Key challenges involved in fighting the Darknet:**

1. A large portion of the activity which takes place on the dark net is illegal. The dark net offers a level of identity security that the surface net does not.
2. Dark net is the virtual equivalent of a black market.
3. Criminals looking to protect their identities in order to evade detection and capture are drawn to this aspect of the dark net. For that reason, it's unsurprising that a number of notable hacks and data breaches have been associated with the dark net in some way or another.
4. The relative impermeability of dark net has made it a major haven for drug dealers, arms traffickers, child pornography collectors and other criminals involved in financial and physical crimes so much so that one can buy anything from tigers to hand grenades to any kind of narcotic substances, provided the potential buyer finds the right website on the dark net.
5. One of the most famous examples of a dark network was the Silk Road marketplace. Silk Road was a website used for the buying and selling of a variety of illegal items, including recreational drugs and weapons. Although it was shut down by government authorities in 2013, it has spawned a number of copycat markets.
6. Used by Activists and revolutionaries to organize themselves without fear of giving away their position to governments they oppose.
7. Terrorists use dark net to provide information to fellow terrorists, to recruit and radicalize, to spread propaganda, raise funds, and to coordinate actions and attacks.
8. Terrorists also use the dark net for illegal purchase of explosives and weapons, using virtual currencies like Bitcoin and other crypto-currencies.
9. Security experts are claiming that hackers and fraudsters have started to offer access to SCADA and ICS systems via discussion forums on the dark web, potentially compromising vital infrastructure networks across the world.

Strategies to tackle Darknet:

1. Given the increased importance of cryptocurrencies in the financial world, it's possible that dark nets will become more of a feature for everyday Internet users in the future.



2. In the meantime, they may also still provide criminals with a means of eluding capture, although true anonymity is never guaranteed, even when using encryption of the type found in these networks.
3. Governments across the world should strengthen their Cybersecurity Framework to deal with the threats posed by dark net. They must cooperate with each other regarding securing the Cyberspaces worldwide through intelligence, information, technology and expertise sharing.
4. India should invest enough in research and development and training and capacity building of personnel in the field of Cybersecurity.
5. Kerala Police Department's initiative, **Cyberdome**, a premier facility dedicated to prevent cybercrime and mitigate cybersecurity threats to the State's critical information infrastructure, is a step in right direction which other concerned authorities across the nation can learn from.

Way forward:

1. The Information Technology Act deals with cybercrime and comes under the Ministry of Electronics and Information Technology. There are only six sections in the law that deal with cybercrime.
2. With the changing times, India needs a code of criminal procedures dealing with cybercrime that would come under the Ministry of Home Affairs, which deals with policing issues.
3. Also, there is a need for police, trained in changing cyber trends who are dedicated only to cybercrime and not transferred to other police units.

One in every three adolescents in the country is exposed to the Internet are victims of one or the other forms of online abuse, why is the issue? Explain and list out strategies on prevention, reporting and redressal of the same. (250 words)

Reference: [The Hindu](#)

Why this question:

In an attempt to assess the pattern of Internet use and online safety, an NGO — Child Rights and You (CRY) — conducted a survey in collaboration with Forum for Learning and Action with Innovation and Rigour (FLAIR). Hence the question.

Key demand of the question:

The answer must discuss the reasons for rising online abuse with special focus on adolescents and list down strategies on prevention, reporting and redressal of it.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Briefly explain what constitutes online abuse.

Body:

Start with the facts and findings of the report –

One in every three adolescents exposed to the Internet are victims of cyber bullying and other forms of online abuse and nearly half of the users display some level of addiction.

Adolescents had easy access to the Internet with 93% of them using it in their homes. There was a clear gender disparity in access to personal devices with 60% boys and 40% girls owning a device.

Thirty percent of adolescents had a negative experience online.



Lack of awareness among the students on the Internet safety guidelines developed by the NCERT with only 30% respondents being familiar with them etc.

Discuss the causative factors underlying the issue. Suggest recommendations as to what needs to be done? –build familiarity with Internet safety rules and the skill to use them for reporting to be built into the school curriculum as well as the need to modify the Central government’s child protection scheme to build infrastructure to deal with cybercrimes against children. Press for schools to recognise an increase in online crimes against children and develop strategies on prevention, reporting and redressal etc.

Conclusion:

Conclude with way forward.

Introduction:

A recent report to assess the pattern of Internet use and online safety, an NGO — Child Rights and You (CRY) — conducted a survey in collaboration with Forum for Learning and Action with Innovation and Rigour (FLAIR) was released. It reported that one in every three adolescents exposed to the Internet are victims of cyberbullying and other forms of online abuse and nearly half of the users display some level of addiction

Body:

Cyber Bullying:

- Cyberbullying or cyber harassment is a form of harassment that takes place over digital devices like cell phones, computers, and tablets.
- Cyber bullying can occur through SMS, Text, and apps, or online in social media, forums, or gaming where people can view, participate in, or share content.
- It includes sending, posting, or sharing negative, harmful, false, or mean content about someone else.
- It can include sharing personal or private information about someone else causing embarrassment or humiliation.
- Some cyber bullying crosses the line into unlawful or criminal behaviour.

Reasons for increasing Cyber bullying:

- The increasing access to affordable data service has given rise to these faceless evil worldwide – young children, in particular teenagers, being the most vulnerable victims.
- The language and content of Web series: The certain shows running on amazon prime or Netflix are not appropriate for teenagers. Teenagers try to adapt that language used in the TV series or shows.
- Nuclear families and isolation of children: Most of the families in India are nuclear families and parents are going to their job regularly so the children’s get neglected and isolated. Therefore, many are not able to identify what the child is going through.
- Cyber bullying, under the Information Technology Act, is not an offence. The Act was last amended in 2008. Since then, social media has exploded in the country. The ground reality of 2017 is vastly different
- Cyber bullying does not qualify in the category of cognizable criminal offences. Only if it is in aggregated form for example, someone created fake profile of others and used that account for detrimental things that only qualifies as offence of impersonation.
- Most of the time the victim is a juvenile but at the same time the person who is committing this crime is also a juvenile and therefore this is covered under juvenile justice act. So the role of



police authority in the conventional manner is limited hence registering an FIR and arresting the juvenile, these scenarios are not possible

- Under-reporting of cases. The reasons are People don't want unnecessary media publicity; the current process is very slow; and there is low confidence in the ability of the system
- The US has often failed to share information vital to dealing with cybercrime. It denies access to data held by companies such as Google and Facebook
- Because Cyberbullying is difficult to track, many victims feel helpless and unable to cope with it, especially if the bullying is personal and long-drawn

Government Initiatives against Cyberbullying:

- Guidelines by NCERT: Because of lack of awareness about cyber bullying among the children's, teachers as well as the parents, NCERT came up with three guideline booklets one for teachers one for school and one for students. For students it's in the form of DO's & DON'Ts.
- Government of India is come up with ministry of home affairs Cybercrime reporting portal gov.in.
- For generating awareness in state of Delhi, Delhi police has come up with an initiative in which Police visits school administration to get aware of cyber bullying and also engage workshops for computer teachers.

Other measures needed:

- Parents can make a vast and positive difference by talking with their children. Like sexuality education in general, the topic of pornography is not one big talk but rather a series of discussions that easily can arise from the content of songs, music videos, video games, movies and unintended or intended exposure to sexually explicit images.
- Parents can help their children develop a critical eye when viewing media, so they see the lies, and differentiate that fiction from the joy in loving equitable and respectful relationships.
- **National Cyber Crime Reporting Portal** shall be designated as the national portal under-reporting requirements in the POCSO Act in case of electronic material
- Union Government shall be empowered through its designated authority to block and/or prohibit all websites/intermediaries that carry child sexual abuse material
- Law enforcement agencies should be permitted to brake end to end encryption to trace distributors of child pornography.
- Use of Artificial intelligence:
 - Tools can be developed which can analyse the behaviour of every internet user. So it can help prevent the user from falling into cyber bullying.
 - Developing some mobile applications that can alert parents if the child is under threat of cyber bullying.
 - Prevent malware attacks by tying up with antivirus agencies.
- Academic measures:
 - The subjects related to cyber bullying and cyber security should be made mandatory instead of only guidelines.
 - In school there should be cyber cell where one could report their grievances whether by its name or anonymously.
- Multipronged approach to handle cases: Need to handle the cases of cyber bullying through multipronged approach such as counselling through Psychiatrist, approaching police, etc.
- Schools shall undertake training programmes for parents at least twice a year, making them aware of hazards for children of free access to smartphones, internet at an early age.



Discuss the concept of Data localization envisioned by the Personal Data Protection (PDP) Bill, 2019. What are the concerns associated with operationalizing data localization in India? Explain. (250 words)

Reference: [The Hindu](#)

Why this question:

The article discusses why the issue of data localization is important for a country and the issues with the policies related to data localization. Such issues have become important, because of the debates raised by Srikrishna committee. The article would help us prepare the issue of data localisation which has been an issue of debate.

Key demand of the question:

The answer must discuss the significance

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Briefly explain

Body:

Bring out the reasons why data localization is important – security, data as a resource, socio economic benefits. The reasons have to be brought out in detail. Mention that Data has often been referred to as the new oil, an economic resource that is fuelling the fourth industrial revolution.

Thereafter, we need to analyse the policies related to data localisation. Mention that like in many other countries, the political narrative in India also seems to be tilting towards data localisation. Highlight the Indian policies related to data localisation.

Discuss the rationale behind them and also analyze whether they help in furtherance of the objective of data localization. Also mention Srikrishna committee recommendations related to data localisation.

Explain the issues associated in detail and ways to overcome them.

Conclusion:

Give your view on the present policies related to data localisation and suggest way forward.

Introduction:

The Personal Data Protection (PDP) Bill, 2019 was referred to a joint parliamentary committee, which is currently engaged in a process of public consultation. The draft law is a comprehensive piece of legislation that seeks to give individuals greater control over how their personal data is collected, stored and used. Once passed, the law promises a huge improvement on current Indian privacy law, which is both inadequate and improperly enforced.

Body:

Data localisation refers to the process of storing data within the borders of a particular country where the data was generated. India's recent drafts and statements have strong signals for data localisation, which means that data of Indians, even if collected by an American company, must be stored and processed in India. Worldwide, the data flow debate is playing out at the World Trade Organisation (WTO) and G20.

Importance of Data localization for India:

- For securing citizen's data, data privacy, data sovereignty, national security, and economic development of the country.



- Much of the data from online sales, on ecommerce platforms is likely to be hosted and stored in US data firms.
- The extensive data collection by technology companies, has allowed them to process and monetise Indian users' data outside the country.
- To curtail the perils of unregulated and arbitrary use of personal data
- With the advent of cloud computing, Indian users' data is outside the country's boundaries, leading to a conflict of jurisdiction in case of any dispute.
- Data is a digital transactions footprint. During war or hostilities, data centres could be switched off. Such scenarios are pushing countries towards local infrastructure.
- Economic benefits will accrue to local industry in terms of creating local infrastructure, employment and contributions to the AI ecosystem.
- Regarding the protection of civil liberties, the argument is that local hosting of data will enhance its privacy and security by ensuring Indian law applies to the data and users can access local remedies.

Concerns associated with operationalizing data localization in India:

- One of the more contentious issues in the law Bill are the provisions pertaining to "data localisation".
- The phrase, which can refer to any restrictions on cross-border transfer of data (for instance, requirements to seek permission for transfer, the imposition of taxes for foreign transfers of data, etc.), has largely come to refer to the need to physically locate data within the country.
- The PDP Bill enables the transfer of personal data outside India, with the sub-category of sensitive personal data having to be mirrored in the country i.e. a copy will have to be kept in the country.
- Data processing/collecting entities will however be barred from transferring critical personal data (a category that the government can notify at a subsequent stage) outside the country.
- The 2018 draft imposed more stringent measures that required both personal and sensitive personal data to be mirrored in the country (subject to different conditions).
- On closer examination it appears that even the revised law may not actually stand the test of proportionality.

Way forward:

- There is an urgent need to have an integrated, long-term strategy for policy creation for data localisation.
- Devising an optimal regulatory and legislative framework for data processors and data centres operating in the country.
- Adequate infrastructure in terms of energy, real estate, and internet connectivity also needs to be made available for India to become a global hub for data centres.
- Adequate attention needs to be given to the interests of India's Information Technology Enabled Services (ITeS) and Business Process Outsourcing (BPO) industries, which are thriving on cross border data flow
- Data needs to be shared with start-ups so that they can have a level playing field in offering innovative services with large and often global data companies.



INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION

INSTA SECURE SYNOPSIS **MAINS 2020**

GS-III

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Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

Examine the role of small towns in the regional development process. (250 words)

Research Gate

Why this question:

Question aims to evaluate the role of small towns in the regional development process.

Key demand of the question:

One has to explain that the regional development process is crucial for development of underdeveloped regions. This can be aided by the presence of small towns.

Directive:

Examine – When asked to ‘Examine’, we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Define what constitute small towns.

Body:

Discuss the functions that the small towns play with regards to the regional development process; They act as the link between larger urban centres in the urban hierarchy with the villages in the region. They provide socio-economic opportunities to the emerging middle class working age population; act as centres for counter-migration etc.

Then explain the limitations they face, discuss policies aimed to address these limitations.

Conclusion:

Conclude with way forward.

Introduction:

Small and intermediate size towns play a significant role in the socio-economic transformation of regional spaces through diffusion of innovations. It, however, has been hypothesized here that in this diffusion process the villages having better infrastructural facilities and services, play central role

Body:

‘small town’ is some place where urbanity has not yet reached in its full vigour. It may also sound relatively smaller in size by area and also by population residing within it. But the concept is not fully clear simply by its demographic status or by its areal occupancy.

Importance of role of small towns in regional development process:

- **By acting as centres of demand/markets for agricultural produce from the rural region**, either for local consumers or as links to national and export markets. Access to markets is a prerequisite to increase rural agricultural incomes, and the proximity of local small and intermediate centres to production areas is assumed to be a key factor.
- **By acting as centres for the production and distribution of goods and services to their rural region**. Such concentration is assumed to reduce costs and improve access to a variety of services, both public and private and for both rural households and enterprises. Hence, services include agricultural extension, health and education (and access to other government services), as well as banking, post, services of professionals such as lawyers and accountants, lower-order services such as bars and restaurants, and wholesale and retail sales of manufactured goods from within and outside the region.



- **By becoming centres for the growth and consolidation of rural non-farm activities and employment**, through the development of small and medium-sized enterprises or through the relocation of branches of large private or parastatal enterprises.
- **By attracting rural migrants from the surrounding region** through demand for non-farm labour, and thereby decreasing pressure on larger urban centres.
- **By managing natural resources** in ways that respond to the needs of growing rural and urban populations with special attention to protecting resources in the face of local and global environmental change.
- Small towns occupy an important position in the **urban-rural continuum** of India.
- Small towns possess a **unique binomial status of acting as a bridge between villages and cities**.
- They provide to villages 'a sort of resort' activity during their off-period from agricultural operations.
- In the developing world, small towns are neither traditional in their structure, nor do they represent modern settlement milieu. But they are empowered functionally by both the city and the country.
- Small towns have a unique way of life governed by their size, site, demography, social ecology and economy.
- Unlike villages, small towns are bigger, have better links with their surrounding countryside but are having weaker community affairs and social set-up.
- Small towns are instruments of stabilizing the balance of the urban process by their being reagents in symbiotic relationship between the lowest and uppermost settlement system.

However, there are challenges related to small towns:

- Unfortunately, despite the significant contribution of these small towns, they remain invisible in the policy discourse.
- The fact that they continue to be administered as rural villages also means that they are not on the priority of state and central governments as far as urban infrastructure is concerned.
- In any case, it is well known that an overwhelming amount of our total expenditure in urban infrastructure is cornered by large projects of urban transportation and infrastructure in metropolitan areas.
- But they also receive lower priority in provision of electricity, communication and financial services such as banking and credit.
- The invisibility of small towns in the political discourse is partly a result of the size of these towns but also the approach of the government.
- Rural areas continue to remain important politically because of the sheer size of rural areas as vote banks but also the nature of vulnerability that rural populations face.
- The absence of an administrative structure suited to urban governance eludes them since they are counted as rural in the administrative scheme of the government.
- The 'neither here, nor there' status of these census towns and small towns raises important questions of sustainability of these as drivers of growth.

Measures needed:

- The solution is not just changing our understanding of urbanization based on statistical measures but an economic classification.
- But more important is to recognize the importance of changing economic geography which is centred on these small towns and census towns.



- This will require not just planning ahead in terms of public provisioning of essential services and infrastructure to these areas but also making sure they continue to remain important for future growth.

Conclusion:

Thus, small towns are not just important for employment creation for the new entrants to the labour force but also a majority of those who will move out of agriculture in the future.

Case study:

A recent study by Urmila Chatterjee, Rinku Murgai and Martin Rama from the World Bank suggests that small towns have contributed significantly more in generating non-farm employment as compared to large cities. Another study by John Gibson, Gaurav Datt, Rinku Murgai and Martin Ravallion also highlights the importance of small towns in rural poverty alleviation compared to large cities.

In what way small entrepreneurs can prove to be a key to India's urban future, job creation, and growth revival of the economy? Analyse.(250 words)

Financial Express

Why this question:

The article highlights the growth dynamics of the formal and informal sectors and in that it explains the vital role that small entrepreneurs can play in reviving the growth story of the Indian economy.

Key demand of the question:

Discuss in detail the possible contributions that small entrepreneurs can make to the economy.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

First discuss who small entrepreneurs are.

Body:

Discuss first the existing Trends in urbanization and formalization of the Indian economy.

Comment on the importance of recognising the role of informal sector as an important driver of growth and job creation.

Quote relevant example if any.

Discuss what aspects foster the coming of small entrepreneurs and in what way they can largely contribute to the economy.

Explain challenges if any involved.

Conclusion:

Conclude that our mindset lets large enterprises have a disproportionate influence in policy making, with no place for the informal sector at the table. But India's urban future, job creation, and growth revival may be with the small entrepreneurs.

Introduction:

India's informal manufacturing sector is large, no matter which definition we use, enterprise or employment. A vast majority of India's workforce is informally employed – those who work outside of formal establishments, in un-incorporated private enterprises and mostly without any social security benefit.

Body:

Potential of India's MSME sector:

Telegram: <https://t.me/insightsIAStips>

Youtube: <https://www.youtube.com/channel/UCpoccbCX9GEIwaile4HLjwA>

Facebook: <https://www.facebook.com/insightsonindia>



- **Contribution to GDP:** The share of MSMEs in the **country's gross value added is estimated to be about 32%.**
- **Leveraging Exports:** It also contributes about **40% to total exports and 45% to manufacturing output.**
- **Employment Opportunities:** It employs 60 million people, creates 1.3 million jobs every year and produces more than 8000 quality products for the Indian and international markets.
- **Diversity:** There are approximately 30 million MSME Units in India and is quite diverse in terms of its size, level of technology employed, range of products and services provided and target markets.
- **Fostering Inclusive Growth:** MSME is constructing inclusive growth in numerous ways through promoting non- agricultural livelihood at least cost, unbiased regional development, large female participation, and providing a protection against deflation.

The challenges and concerns associated with the growth of Informal sector:

- **Access to Credit:**
 - According to Economic Survey (2017-18), MSME sector faces a major problem in terms of getting adequate credit for expansion of business activities.
 - The Survey had pointed out that the MSME received only 17.4 per cent of the total credit outstanding.
 - Most banks are reluctant to lend to MSMEs because from the perspective of bankers, inexperience of these enterprises, poor financials, lack of collaterals and infrastructure.
- **Poor Infrastructure:**
 - With poor infrastructure, MSMEs' production capacity is very low while production cost is very high.
- **Access to modern Technology:**
 - The lack of technological know-how and financial constraints limits the access to modern technology and consequently the technological adoption remains low.
- **Access to markets:**
 - MSMEs have poor access to markets. Their advertisement and sales promotion are comparatively weaker than that of the multinational companies and other big companies.
 - The ineffective advertisement and poor marketing channels makes it difficult for them to compete with large companies.
- **Legal hurdles:**
 - Getting statutory clearances related to power, environment, labour are major hurdles.
 - Laws related to the all aspects of manufacturing and service concern are very complex and compliance with these laws are difficult.
- **Government policies:**



- While the goal of Goods and Service Tax reform is commendable, its hasty implementation has adversely impacted small entrepreneurs in the informal sector. It has broken the link between formal and informal sectors.
 - Large enterprises that outsource a lot of tasks to small enterprises are now less inclined to outsource it to the informal sector that barely come under the GST net.
 - There is rising concern that demonetisation has also adversely impacted the informal sector more than the formal sector. Hundreds of millions of small enterprises that operate in the informal sector, and which are cash dependent, have suffered losses and lost their jobs.
 - Insolvency and bankruptcy reforms are important and needed for more efficient resource allocation. But it is not of a great consequence to the informal sector. There is mounting evidence that economic shocks that worsen infrastructure affect informal sectors by reducing their access to markets and basic services.
- **Lack of skilled manpower:**
- The training and development programs in respect of MSME'S development has been. Thus, there has been a constant crunch of skilled manpower in MSMEs

Other issues:

- Low ICT usage.
- Low market penetration.
- Quality assurance/certification.
- IPR related issues.
- Quality assurance/certification.
- Standardization of products and proper marketing channels to penetrate new markets.

Measures needed:

- Government of India and banks should design plans and measures to widen easy, hassle-free access to credit.
- The RBI should bring stringent norms for Non-Performing Assets (NPA) and it will help curbing loan defaulters and motivate potential good debts. Further, according to critics, the Credit Guarantee Scheme for MSME (CGTMSE) run by SIDBI is a growing contingent liability and needs to be examined with urgency
- Government should provide enhanced development and upgradation of existing rail & road network and other infrastructure facilities in less developed and rural areas to boost growth and development of MSMEs
- There should proper research and development in respect of innovative method of production and service rendering. Further, the government should promote and subsidise the technical know-how to Micro and small enterprises.
- Government should encourage procurement programme, credit and performance ratings and extensive marketing support to revive the growth of sick units.
- Skill development and imparting training to MSME workers is a crucial step to increase the productivity of the sector. The government should emphasise predominantly on skill development and training programs

Way forward:



- India's favorable structural trends and young demographics will revive growth, with urbanisation and informal sector playing a key role in job creation.
- The finance minister could explicitly recognise the role of informal sector as an important driver of growth and job creation in the next Budget.
- While the agenda on smart cities has caught the attention of policy makers, it needs to be made more inclusionary by integrating the informal sector into city planning, budgeting and financing. Technological revolution has made the informal sector as partners in development.
- Smartphones have become the key tool for women entrepreneurs, putting instant information about safety alerts, traffic, tourism, health services, and community news into millions of hands. India's urban future is in the informal sector.

Investments in the infrastructure sector in different ways can transmit into numerous effects leading to better growth of the Indian economy and inclusive employment generation. Discuss.(250 words)

[Financial Express](#)

Why this question:

The article highlights the significance of investments in the infrastructure sector of the country and in what way it in turn boosts the economy in several different ways.

Key demand of the question:

Discuss from the article relevantly, points that justify significance of investments in infrastructure. Relate in what way it augments the employment generation capacity in the economy.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Discuss what all constitutes infrastructure and how it drives other sectors of the economy.

Body:

Explain that Infrastructure is a crucial driver of economic growth. Infrastructure development not only creates employment but also has the capacity to increase consumption and can give a boost to the economy.

Discuss some gaps that are prevalently being witnessed in the infra sector.

Suggest means and ways to handle such issues.

Discuss the efforts taken by the government in this direction.

Conclusion:

Conclude with importance of investments and their relevance to the overall growth of the economy.

Introduction

Infrastructure enables trade, powers businesses, connects workers to their jobs, creates opportunities for struggling communities and protects the nation from an increasingly unpredictable natural environment. From private investment in telecommunication systems, broadband networks, freight railroads, energy projects and pipelines, to publicly spending on transportation, water, buildings and parks, infrastructure is the backbone of a healthy economy.

Body

- **Infrastructure investment leading to better growth and employment**

The target of \$5 Trillion economy can be reached with robust infrastructure in India.



- **Employment Generation:** It supports workers, providing millions of jobs each year in construction and maintenance. A **Brookings Institution** analysis Bureau of Labor Statistics data reveals that 14 million people have jobs in fields directly related to infrastructure.
 - Infrastructure development helps in **poverty reduction** due to its high employment elasticity leading to huge job creation capabilities.
- **Transport:** It has the **trickle-down effect** as better transportation infrastructure can lead to access to education, health, market and other basic necessities.
 - **Eg:** Transport is a burning component of **post-harvest crop management**. Especially for perishables.
 - India's most populous state Uttar Pradesh has only **one PHC for 28 villages** on average. Having goods transport in these cases is vital for healthcare.
 - Government's **Gram Sadak Yojana and Aajeevika Express** can prove to be a game changer for rural economies.
- **Increasing the manufacturing growth** as there is better connectivity, easier movement of goods and services, facilitating private investments
- **It reduces the regional and inter-state disparities** and leads to a balanced economic growth by regional equality.
- **Ease of Doing Business** will be improved especially if products can be transported faster with minimum delay. **Eg: Express freight, Inland waterways and hinterland to port connectivity for exports.**
- Infrastructure sector **has huge spill-over effects** on other sectors of economy. It **has money-multiplier** effect too.
- **Better quantity and quality of infrastructure** can directly raise the **productivity of human and physical capital** and in turn growth of nation
- **Climate change and disaster resilience:** There is a clear need for ensuring that all new and existing infrastructure systems are climate and disaster resilient
- **Government Efforts:**
 - With Initiatives such as 'Housing for All' and 'Smart Cities,' the government is working on reducing the bottlenecks that impede growth in the infrastructure sector.
 - Under UDAY scheme the government has taken steps to improve operational and financial parameters of discoms.
 - The National Highways Authority of India (NHAI) launched Masala Bonds in May 2017, for raising capital for funding the infrastructure projects in India.
 - National Infrastructure Investment Fund (NIIF) with an initial corpus of Rs 40,000 crore.
 - The modernization of Indian Railways has been one of the top priorities of the central government
 - The **Bharatmala Pariyojana** is unique and unprecedented in terms of its size and design, as is the idea of **developing ports as engines of growth under Sagarmala**.

In lieu of above benefits, Government recently announced the National Infrastructure Pipeline (NIP) investing nearly Rs. 102 lakh crore in the next five years.

Conclusion

Infrastructure is a key driver of the overall development of Indian economy. It is seen that investments in infrastructure equal to 1% of GDP will result in GDP growth of at least 2% as



infrastructure has a “multiplier effect” on economic growth across sectors. The recent headway made in developing transport infrastructure will prove to be the biggest enabler for growth. An efficient infrastructure can provide avenues for employment through trickle-down effect. India’s growth story should no longer be impeded by a lack of infrastructure, and the fruits of this growth should reach everyone in the remotest part of the country.

Private banks were the slowest to pass on the benefits of falling interest rates to their customers last year compared to their state-run and foreign rivals. Discuss in detail the underlying causes of for private banks not passing on the benefits of interest rate cuts to its customers compared to other banks. (250 words)

[Live Mint](#)

Why this question:

Discuss the issues of private banks not transmitting benefits of interest rates to the customers.

Key demand of the question:

Explain the issue in detail and highlight the impact of the problem while suggesting solutions to the issue.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

First discuss who small entrepreneurs are.

Body:

Discuss that the process of setting interest rates by banks is at the core of transmission and the central bank has for several years been trying to make it more transparent. This has led to the change from benchmark prime lending rate

(BPLR) to base rate to MCLR and finally to external benchmark-based lending rates.

Explain what does the RBI data show?

The median one-year marginal cost of funds-based lending rate (MCLR) for private banks fell a meager 12 basis points (bps) to 9.18% between January and December 2019, compared to RBI’s cumulative 135 bps cut in its key policy rate to 5.15%. Most bank loans are typically priced over the one-year MCLR, making it the most tracked rate.

In the same state-run banks have lowered their one-year median MCLR by 45 bps and foreign banks have cut their lending rates by 75 bps.

Foreign banks have the lowest median one-year MCLR rate at 7.9% as of December. Their public counterparts are at 8.3%. For all scheduled commercial banks taken together, the one-year median rate stands at 8.3%.

Suggest solutions to address the issue.

Conclusion:

Conclude with what needs to be done.

Introduction:

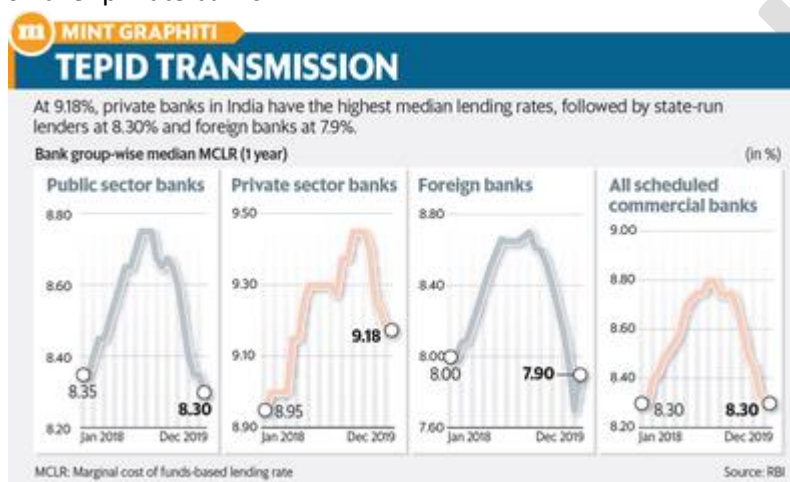
Private banks were the slowest to pass on the benefits of falling interest rates to their customers in 2019 compared to their state-run and foreign rivals, Reserve Bank of India (RBI) data showed. The median one-year marginal cost of funds-based lending rate (MCLR) for private banks fell a meagre 12 basis points (bps) to 9.18% between January and December 2019, compared to RBI’s cumulative 135 bps cut in its key policy rate to 5.15%.

Body:



Rate cuts in State run banks vis-à-vis private banks:

- Undoubtedly, there has been a reduction in lending rates for both private and public sector banks if you look at the data on weighted average lending rate published by RBI
- state-run banks have lowered their one-year median MCLR by 45 bps and foreign banks have cut their lending rates by 75 bps.
- Foreign banks have the lowest median one-year MCLR rate at 7.9% as of December.
- Their public counterparts are at 8.3%. For all scheduled commercial banks taken together, the one-year median rate stands at 8.3%.
- However, the trend in the median lending rates of private banks as a category is somewhat different from the trend in weighted average lending rates because the reduction in the cost of funds for larger and stronger private banks has been higher.
- Therefore, the lending rate reduction for them has been higher as compared to some of the smaller private banks



Reasons for private banks not passing on the benefits of interest rate cuts to its customers compared to other banks:

- The reason private banks are less eager to cut interest rates lies in their cost of funds.
- They pay the highest interest to their depositors.
- Private lenders are followed by public sector and foreign banks, respectively.
- While private banks paid depositors 6.91% interest in November 2019 (latest data), public sector banks paid 6.65% and foreign banks 5.38%, according to RBI data on weighted average deposit rates.

Way forward:

- Enabling effective monetary transmission would not only increase the credibility of the Central Bank but also help in strengthening the financial structure.
- Impounding of bank money by RBI is too high with 4% cash reserve ratio carrying no return whatsoever.
- To make transmission work, the least the RBI can do is to reduce CRR.
- Timely transmission of policy rates could be considerably improved if the banking sector's non-performing assets (NPAs) are resolved more quickly and efficiently.
- If the government wants to reduce lending rates, it could focus on bringing down its own fiscal deficit and public sector borrowing.



- At the current low levels of per capita income, the savers are far more risk-averse in India and unwilling to invest in higher-risk instruments other than bank deposits.
- For a repo-linked regime to work, the whole banking system in India would have to shift to that.
- In other words, along with banks' lending rates, their deposit rates too must go up and down with the repo.

Besides Ujwal DISCOM Assurance Yojana (UDAY) fading to engineer a reversal in DISCOM finances, government needs to revise incentive structures. Critically analyse the statement. (250 words)

Indian Express

Why this question:

Almost five years after the launch of the Ujwal DISCOM Assurance Yojana (UDAY), there are indications that the power sector is once again in trouble. The article traces the performance of the scheme so far and brings out detailed deliberation of DISCOM finances.

Key demand of the question:

Discuss the issues of power sector in India in general and specifically with respect to the financial concerns of state DISCOMs. Highlight the need for efforts by the government in different perspectives.

Directive:

Critically analyse – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgment.

Structure of the answer:

Introduction:

Briefly highlight the issue.

Body:

In the recent past, several initiatives have been taken to address the challenges in the power sector. These include structural changes in the regulatory framework as proposed by the Electricity (Amendment) Bill, 2014, and more recently, the UDAY scheme to address financial issues being faced by companies distributing electricity.

Discuss what challenges are posed by the DISCOMs, why have the restructuring policies failed in the past.

Suggest what government should do to address these constraints.

Conclusion:

Conclude that a multi-pronged approach is the need of the hour.

Introduction:

Ujwal DISCOM Assurance Yojana (UDAY) is a financial restructuring and efficiency enhancing program, aims to reduce the debt burden of the state owned electricity distribution companies (DISCOMs) started in 2015. Though the main component of UDAY is debt management, other measures like raising operational efficiency are also proposed to permanently settle the debt scenario of DISCOMs. Almost five years after the launch of the Ujwal DISCOM Assurance Yojana (UDAY), there are indications that the power sector is once again in trouble.

Body:

The UDAY scheme, which involved state governments taking over the debt of discoms, had three critical components: A reduction in the aggregate technical and commercial (AT&C) losses, timely revision of tariffs, and elimination of the gap between average per unit of cost and revenue realised.

**Success of UDAY scheme:**

- It took off well, with a large number of states joining the scheme. Several states took over the debt of their utilities, improving their liquidity situation. Anecdotal evidence also suggests an improvement in the power supply situation.
- Government's UDAY scheme has helped debt-laden discoms of 24 states to reduce losses to Rs 369 billion in 2016-17 from Rs 515.9 billion in the previous financial year.
- The participating states have achieved an improvement of one per cent in Aggregate Technical & Commercial (AT&C or distribution) losses and Rs 0.17 a Unit in the gap between Average Cost of Supply and Average Revenue realised in 2016- 17
- AT&C losses have declined in some states, but not to the extent envisaged. Under UDAY, discoms were to bring down AT&C losses to 15 per cent by FY19.

Limitations of UDAY scheme:

- Not only have losses of state-owned distribution companies (discoms) risen, but their dues for power purchases have also surged.
- At the end of November 2019, dues owed by discoms to power producers, both independent and state-run entities, stood at Rs 80,930 crore.
- Of these, Rs 71,673 crore extends beyond the allowed grace period of 60 days. Rajasthan leads the states with the most dues, followed by Tamil Nadu and Uttar Pradesh.
- While some states have raised power tariffs, the hikes have not been sufficient as political considerations prevailed over commercial decisions.
- As a result, the gap between the average cost per unit of power and the revenue realised has not declined in the manner envisaged, forcing discoms to reduce their power purchases and delay payments to power producers.
- This in turn has impaired the ability of power generating companies to service their debt, causing stress to the banking sector.
- There is no guarantee that there will not be future losses as there is no retribution if the State electricity boards choose not to reform. In fact, this has been kept out of the purview of the scheme.
- By also mandating that State governments have to progressively take over the losses of their SEBs, the Centre has put the onus on the States to deal with the problem

Measures needed:

- Discom business needs to be fundamentally restructured.
- Governance needs to be improved with greater resilience to political influence.
- Robust mechanisms need to be put in place to ensure tariff rationalisation and follow-through on subsequent increases.
- Market-friendly electricity reforms need to be introduced and enforced. This includes expanding the role of short-term markets, as well as strict enforcement of PPAs to assure investors and developers of the legal sanctity of contracts signed with discoms.
- Streamlining the open access process, with the fair application of additional surcharges will boost the demand for renewable energy from the commercial and industrial sectors.
- Discoms will have to be pushed harder to invest in technical solutions and infrastructure upgrade such as feeder separation, installing smart meters and undertaking detailed data collection and analysis.
- Strict Actions to curb Electricity theft and other actions those lead to Losses to DISCOMs.



- Integrating UDAY scheme with Make in India and Startup India to ensure overall Development.
- Integrating UDAY with KUSUM to increase amount of electricity to DISCOMS.

Conclusion:

The Centre should also look at altering the incentive structures of states in order to ensure compliance. Stiff penalties need to be imposed for not meeting the targets laid out in the new scheme.

Several doubts expressed over recent official statistics in the country, examine if the present national accounting and analytical framework misses out on many key dimensions of a complex economy. Suggest solutions.(250 words)

The Hindu

Why this question:

The article highlights the fact that Reliable and trustworthy data models could improve our chances of improving our economy, amidst several doubts expressed over recent official statistics in the country.

Key demand of the question:

Discuss in detail the recent issues that have been continuously pointed out at the inefficiencies and loopholes in the statistical data. And suggest what needs to be done.

Directive:

Examine – When asked to ‘Examine’, we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

First discuss what the issue is around the statistical data of the country.

Body:

Highlight first the facts where doubts were expressed over statistical data like the – Base year for GDP estimation, Employment-unemployment data being withheld etc.

Then move onto discuss the importance of statistical data in general.

Explain what are the major concerns over data

Suggest way forward as to what can be done to resolve the issue.

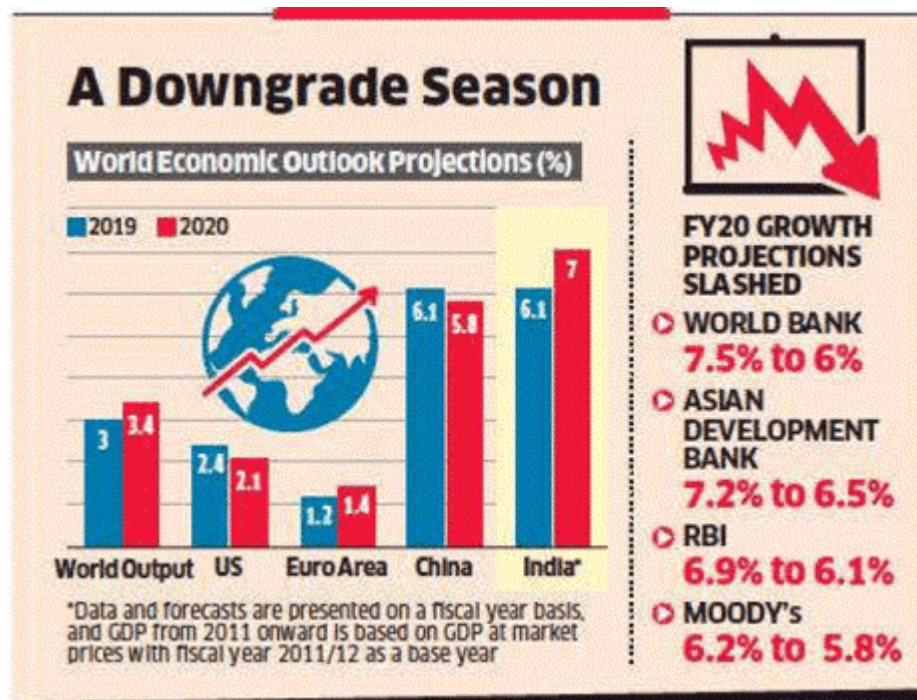
Conclusion:

Conclude that newer solutions should be explored and the country needs to Build more reliance and trust on public data.

Introduction:

The new series of Gross Domestic Product (GDP) figures with 2011-12 as base, released in 2015, has not gone well with analysts; the withholding of employment-unemployment data for some time and consumer expenditure data, which is not released, added to this unease. Bringing the National Sample Survey Office (NSSO) under the fold of National Statistics Office, altering its long-standing arrangement under the Governing Council and then National Statistical Commission, triggered suspicion.

Body:



Doubts raised:

- There are fears that the merger is an attempt to make the NSC toothless and officially defunct.
- The present series encountered serious problems for the price adjustment, specifically for the services sector contributing about 60% of GDP, in the absence of appropriate price indices for most service sectors.
- Defunct enterprises in MCA-21: The report based on a field survey of services firms showed that 16.4% of companies in the MCA-21 database were either non-traceable or closed, and another 21.4% were 'out of coverage' or misclassified.
- Insufficiency in ASI data: ASI underestimates manufacturing growth in the GDP by up to one percentage point as about half the manufacturing companies registered under the Companies Act were not in the ASI list.
- Pricing series issue with the service sector: The present series encountered serious problems for the price adjustment, specifically for the services sector contributing about 60% of GDP.
- Absence of price index: There is an absence of appropriate price indices for most service sectors.
- Unchanged approach: price and production indices are constructed using a fixed base Laspeyres Index, yield rate for paddy is estimated by crop cutting experiments, and the organization of field surveys for collection of data on employment-unemployment, consumer expenditure, industrial output, assets, and liabilities continue.
- Productivity and remunerative price of output are major concerns for agriculture.
- The growing inequality and concentration of wealth: Monopoly power, inefficient input-output mix, dumping, obsolete technology, and production mix
- Ignoring structural issues: The macroeconomic framework assumes symmetric income distribution as it focuses on a trend-cycle decomposition of GDP for growth and a trickledown effect for percolation of income

Measures needed:

- We need a new framework for analysis for such a complex system and evolutionary process.



- There is a question of growing market power, automation, robotisation and other labour-replacing technologies affecting profitability, structural change and general welfare.
- We need to find alternative avenues for the unemployed and jobs lost.
- We also need to know in greater detail about market microstructure and optimality therein, the role of technology and advanced research, changing demand on human skills, and enterprise and organising ability, which are all complex.
- The consensus macroeconomic framework of analysis assumes symmetric income distribution, and does not get into the depth of structural issues, as it focuses on a trend-cycle decomposition of GDP for growth and stability in market parlance and a trickle-down effect for percolation of income.
- In order to inject efficiency and stability, we need to have detailed data on how: markets clear, prices are formed, risks build up, institutions function and, in turn, influence the lifestyle of various sections of the people.
- The alternative to be realistic for the real world must rest on two pillars: the micro-behaviour of individuals, and the structure of their mutual interactions.
- In the changed situation of availability of micro data, we need to build a system to integrate the micro with the macro, maintaining distributional characteristics.

Way forward:

- As official statistics is a public good, giving information about the state of the economy and success of governance, it needs to be independent to be impartial.
- Data is the new oil in the modern networked economy in pursuit of socio-economic development.
- The economics now is deeply rooted in data, measuring and impacting competitiveness, risks, opportunities and social welfare in an integrated manner, going much beyond macroeconomics.
- We have a commitment to produce these statistics transparently, following internationally accepted standards, tailor-made to suit local conditions, for multi-disciplinary analytics.
- As these statistics reflect on the performance of the government, it is necessary that its independence is maintained scrupulously.
- To pursue the goal of a \$5-trillion economy by 2024-25, harnessing demographic dividend, we must tap underused resources for demand creating investment, which require data to pursue policy right from a district and evaluate performance for efficiency including governance.

Improving air quality in the cities requires a transformative planning approach guided by the singular objective of reducing the use of polluting vehicles. In the light of the statement above discuss and analyse the significance of India switching to new emission standards in the coming days. (250 words)

Reference: [You Tube](#)

Why this question:

The question is in the backdrop of the fact that BS 6 will be the new emission standard that all vehicles in the country will have to adhere to from April 1, 2020. Thus the question.

Key demand of the question:

Discuss the context of the question in detail and explain in what way such transformative planning approach is the need of the hour to overcome the challenge of Pollution in the country.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.



Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Briefly highlight the shift from BS IV to BS VI.

Body:

Discuss the current conditions of pollution in the Indian cities.

Explain why is it important to upgrade these norms?

Upgrading to stricter fuel standards helps tackle air pollution.

Global automakers are betting big on India as vehicle penetration is still low here, when compared to developed countries.

At the same time, cities such as Delhi are already being listed among those with the poorest air quality in the world. The national capital's recent odd-even car experiment and judicial activism against the registration of big diesel cars shows that governments can no longer afford to relax on this front.

Discuss what steps are to be taken to address the challenges.

Conclusion:

Conclude that outcome of such policies should be welcomed for the positive impact it will have on air quality and public health and more of such approaches should be taken up in future.

Introduction:

According to the findings, India is home to seven of the 10 most polluted cities in the world, going by air-quality numbers recorded last year. Gurugram and Ghaziabad are the most polluted, while Delhi is the worst off among capital cities. ICMR estimates reveal that one in every eight deaths in India is attributable to air pollution, which now contributes to more disease burden than smoking.

Body:

BS 6:

BS 6 is the new emission standard that all vehicles in the country will have to adhere to from April 1, 2020. The sale of BS-4 vehicles will also cease from this day. The Supreme Court had ruled on October 24 2019 that no BS-4 vehicle would be sold with effect from April 1, 2020. Bharat Stage Emission Standards are emission regulations implemented by the government to keep a check on emissions from motor vehicles.

- To start with, the 'BS' in BS VI stands for 'Bharat Stage' which signifies the emission regulation standards set by Indian regulatory bodies.
- The 'VI' is a roman numeric representation for six (6). The higher the number gets, the stricter the Bharat Stage emission norms get which eventually means it becomes trickier (and costlier) for automakers to meet them.
- These emission standards were set by the central government to keep a check on the pollutant levels emitted by vehicles that use combustion engines. To bring them into force, the Central Pollution Control Board sets timelines and standards which have to be followed by automakers.
- Also, the BS norms are based on European emission norms which, for example, are referred to in a similar manner like 'Euro 4' and 'Euro 6'. These norms are followed largely by all automakers across the globe and act as a good reference point as to how much does a vehicle pollute.



- To wrap it up and put it simply, Bharat Stage emission norms are largely similar to the European emission norms followed globally.

Difference between BS-IV and the new BS-VI:

- The major difference in standards between the existing BS-IV and the new BS-VI auto fuel norms is the presence of sulphur.
- The newly introduced fuel is estimated to reduce the amount of sulphur released by 80%, from 50 parts per million to 10 ppm
- As per the analysts, the emission of NOx (nitrogen oxides) from diesel cars is also expected to reduce by nearly 70% and 25% from cars with petrol engines.

Importance of upgrade these norms:

- Upgrading to stricter fuel standards helps tackle air pollution.
- Global automakers are betting big on India as vehicle penetration is still low here, when compared to developed countries.
- At the same time, cities such as Delhi are already being listed among those with the poorest air quality in the world. The national capital's recent odd-even car experiment and judicial activism against the registration of big diesel cars shows that governments can no longer afford to relax on this front.
- With other developing countries such as China having already upgraded to the equivalent of Euro V emission norms a while ago, India has been lagging behind. The experience of countries such as China and Malaysia shows that poor air quality can be bad for business. Therefore, these reforms can put India ahead in the race for investments too.

Will the vehicles with BS-VI tech become expensive?

- The everyday customer who is yet to buy themselves a vehicle or is planning to get one could soon have to shell out more for their purchase.
- On top of that, the fuel costs also need to be taken into account. But above all of this, there is a bigger target to be achieved. India has some of the most polluted cities in the world and automobiles are often considered as one of the biggest factors responsible for it.
- The need of the hour is to control the pollution levels by all means possible and since globally, countries are implying Euro 6 levels of emission regulations, India needs to step up its game and hence the BS IV to BS VI emission norm implication.

What needs to be done?

- Although the BS-4 car can run on BS-6 Fuel, but what will happen if we defer our purchase
- Emission: Cleaner fuel as the sulphur levels will be lower and lower PF (Particulate Filter). Thus, the emissions will be relatively much lower than what emit by cars.
- Also, our BS-6 Car will get latest Technology and updates including changes in Catalytic, Diesel Particulate Filter, and Fuel Injection for better compliance to Emission. Care for Environment – you should defer your purchase call
- Engine Performance: The Sulphur levels will be lower, thus acids as formed will be lower and also the engine oil life will improve.
- Even the fuel would be much cleaner and thus care for better efficiency from our car in terms of improved Engine Oil Life, Engine Performance, Engine NVH Levels you will get all these benefits with BS-6 Fuel



- Fuel Efficiency: Been the fuel in BS-6 regime would be much cleaner – the overall fuel efficiency can also jump in when used a BS-6 compliant car using BS-6 Fuel grade.
- Safety Features: ABS, Airbags would be standard all across model Variants as sold from 2020. Even crash test regulations would be improved.
- It involves Selective Catalytic Reduction (SCR), which is an advanced active emissions control technology.
- SCR converts nitrogen oxides to nitrogen, water, tiny amounts of CO₂ by pumping in automotive grade liquid urea, which is known as Diesel Exhaust Fluid (DEF).
- It achieves NO_x reductions up to 90%. Tailpipe Particulate Matter filter is used.
- This reduces the Particulate Matter coming out of the vehicle to the required level.

Conclusion:

This outcome should be welcomed for the positive impact it will have on air quality and public health. At every stage, the technology is increasingly more complex. To attain the specified super low emissions, all reactions have to be precise, and controlled by microprocessors. Improving air quality in the cities requires a transformative planning approach guided by the singular objective of reducing the use of polluting vehicles.

Inclusive growth and issues arising from it

“Digital literacy is integral for financial inclusion.” Comment in the background of India’s efforts to expand access to organized financial systems through digital payments (250 words)

[The Hindu](#)

Why this question:

The article emphasizes on the fact that Access to Internet must be recognized as a fundamental right to free speech, basic freedoms and the right to life. Thus the context of the question.

Key demand of the question:

Deliberate in detail as to how Digital literacy is integral for financial inclusion. Also highlight the country’s efforts in augmenting the digitization process of the economy.

Directive:

Comment– here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

Explain what you understand by digital literacy.

Body:

Focus the spurt in digital infrastructure.

Explain how digital literacy is crucial for financial inclusion.

Discuss the importance of financial inclusion for the inclusive growth of the society.

The recent growth in digital banking infrastructure could foster a cultural shift in the intensity of use of electronic modes of payments and settlement. Its adoption even in the hinterlands with the active use of business correspondents is encouraging.

Discuss concerns and challenges involved if any.

Conclusion:

Conclude with policies and measures taken by the government in this direction.

Introduction:



Digital literacy refers to the wide range of skills, which are necessary to emerge successful and adapt to the digital world. Since the print mediums are facing stagnation, the ability to grasp information found online becomes important. People and students who lack digital literacy skills may soon find themselves tough to gain access to information which is available online.

Recently, the Kerala High Court, in **Faheema Shirin v. the State of Kerala** case, declared the **right to Internet access as a fundamental right** forming a part of the right to privacy and the right to education under Article 21 of the Constitution. The court held that, in an information society, unequal access to the Internet creates and reproduces socio-economic exclusions.

Body:

India's efforts to expand access to organized financial systems through digital payments:

- As a larger part of the RBI's policy to promote digital inclusion, making online remittances through **National Electronic Funds Transfer (NEFT) and Real Time Gross Settlement System (RTGS)** facilities in savings bank accounts free from January 2020 is indeed significant.
- **Forty-five wallet players, 50 UPI-based payments service providers and 142 banks** on the UPI platform are actively coordinating with each other to deliver services to customers.
- **Small finance banks (SFBs) and payments banks** have also been set up to improve outreach and to pursue FI, for the benefit of people at the bottom of the pyramid — migrant labour, village workforce, low-income households, small businesses and other unorganised sector entities.
- **Merchant discount rates** — the charges that merchants have to pay to banks on transactions done on debit/credit cards — were waived in the Union Budget presentation for 2019-20.
- Companies with a turnover of ₹50 crore or more are mandated to provide free facility of payment through Rupay debit cards and UPI QR codes to customers from January 2020, and a tax of 2 per cent will be levied on entities drawing cash of over ₹1 crore in one year.
- The number of **point of sales terminals increased from 12,11,890 in September 2015 to 45,89,727 by September 2019**, while the number of debit cards increased from 604 million to close to 835 million during the same period.

Reasons for the above success:

- Non-bank peer-to-peer lenders and the introduction of a new type of prepaid payment instruments will go a long way in deepening FI through further digital penetration.
- Enhancing access to financial touch points and reducing the cost of access have been the twin drivers of digital inclusion.
- Moving beyond just setting up full-fledged bank branches, banks have started expanding the base of alternate electronic delivery channels at a much faster pace, after mobile connectivity and network, and Internet services were made accessible and affordable to people at the bottom of the pyramid.

Limitations/challenges present:

- The formidable challenge is the **increased inoperative bank** accounts that limit the merits of FI.
- The World Bank estimates indicate that **47 per cent of such accounts are inoperative and 23 per cent of PMJDY accounts remain dormant**. The gap in imparting financial and digital literacy is evident.
- **Tackling inoperative accounts and deepening FI efforts** to realise its actual potentiality to contribute to economic the wellbeing of the society remains a formidable challenge.



- **Inadequate institutional efforts** to disseminate financial awareness at the grassroots level are keeping even financially connected masses (those having bank accounts and debit cards) away from the formal financial system.
- While many stakeholders have been doing sporadic work, they are not coordinated enough to optimise its effectiveness.
- The missing link in FI is now obviously the **lack of financial and digital knowledge of massive user base**.

Way forward:

- In order to make FI work to ensure that the benefits of inclusion reaches the intended target group of the society, seminal changes need to be introduced in the spread of financial and digital literacy and credit counselling.
- Adequately equipping and empowering institutions engaged in disseminating comprehensive literacy programmes will be essential to unleash the potentiality of the huge financial and digital infrastructure built and designed to sub serve FI.
- It is the right time to accelerate literacy campaigns, particularly when digital culture is spreading fast with introduction of the GST, FASTags and other online utilities of daily use.
- Right synchronisation of comprehensive literacy efforts with the evolving payment and settlement ecosystem should be able to take India close to the end-state objectives of FI by 2030, by when the sustainable goals of UN are to be achieved.

Conclusion:

We are living in an 'information society'. Unequal access to the Internet creates and reproduces socioeconomic exclusions. It is important to recognise the right to Internet access and digital literacy to alleviate this situation, and allow citizens increased access to information, services, and the creation of better livelihood opportunities

Considering the fact that Internet broadband and mobile Internet services have become an integral part of the life of the people, Do you agree that it is time to recognize that the right to access the Internet which is indeed a fundamental right within our constitutional guarantees? Analyse. (250 words)

[The Hindu](#)

Why this question:

The article debates upon the need to recognize right to internet as the fundamental right.

Key demand of the question:

Discuss the importance of Internet and access to it as equivalent to right to life and right to equality thus qualifying it as an integral fundamental right.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Internet broadband and mobile Internet services are a lifeline to people in India from all walks of life.

Body:

Discuss the significance of Internet in today's world – People working in the technology-based gig economy — like the thousands of delivery workers for Swiggy, Dunzo and Amazon and the cab drivers of Uber and Ola — depend on the Internet for their livelihoods. It is a mode of access to



education for students who do courses and take exams online. Access to the Internet is important to facilitate the promotion and enjoyment of the right to education.

Present a discussion of how right to access to the Internet can be rooted in Article 19 of the Universal Declaration of Human Rights.

Highlight the need to back internet access as right to life.

Discuss concerns if any and suggest way ahead.

Conclusion:

Conclude by reasserting significance of right to internet as a fundamental right.

Introduction:

Internet broadband and mobile Internet services are a lifeline to people in India from all walks of life. While the Internet is certainly a main source of information and communication and access to social media, it is so much more than that. In Sep 2019, the Kerala High Court, in **Faheema Shirin v. the State of Kerala case**, declared the right to Internet access as a fundamental right forming a part of the right to privacy and the right to education under **Article 21 of the Constitution**. Despite this, according to the Software Freedom Law Centre data, there have been more than a 100 Internet shutdowns in different parts of India in 2019 alone.

Body:

Need for right for Internet:

Internet has become quite useful in our daily public life as well. It is quite hard to ignore the need, importance and the value of internet in our daily life. Though there are countless uses of Internet in society, we have listed out here a few benefits of Internet for society.

- **Online Banking:** In the world we live today, the role of Internet has tremendously grown. In the field of online banking, the advantages of internet are of pivotal importance. Earlier, there used to be manual banking work. It was quite difficult to handle banking and transaction online. Now, with the help of Internet it has been made quite easier to send and receive payments anywhere in the world. It has brought many positive economic impacts on our society.
- **Online Trade & E commerce:** E-commerce is gaining popularity across the world. It is only because of Internet that doing business has become quite easier. Online trade has changed the fortunes of millions of people across the world. It has revolutionized the social life.
- **Faster Connectivity:** Due to Internet, the connectivity has become much faster. The distances have disappeared. The world has become global. It is quite easy to connect with each other. The virtual world has made it possible for us to get in touch easily with each other. The world has become a global village where the knowledge, ideas, information and everything flows quite easily from one place to another. It has the great benefits for society.
- **Creation of More Jobs & More Income Opportunities:** In Old times, the economy used to be limited and isolated. But with the advent of Internet the industries and world economies have come closer to each other. Thanks to Internet, millions of new jobs are being created. The economic advantages of internet for society have been witnessed. Millions of People are changing their lives with the help of Internet. This is one of the greatest benefit of Internet for society.
- **Spread of Education and Awareness:** Internet has completely changed the system of education. Earlier there used to be the traditional and limited education system. Education has spread quickly via online learning. The online education system via internet has dramatically reduced



the cost of education. It has become easily accessible and affordable. With the help of online videos platforms, teaching models and multiple audio, video and visual study material, the education and awareness has been spreading very fast. It is again one of the greatest social benefit of Internet for our lives.

- **The Role of Artificial Intelligence:** Artificial Intelligence and machine learning has completely changed the scope and future of computer education. Artificial intelligence is proving quite beneficial for society. It is useful in every walk of life including in education, health, economy, trade, industry and in medial field. This great social benefit is again due to internet.
- **Role of Internet and Informational Technology in Medical and Health Field:** Thanks to modern technology of today we have the cures of these diseases easily available. The medical field has greatly progressed because of Internet connectivity and information technology.
- Internationally, the right to access to the Internet can be rooted in **Article 19 of the Universal Declaration of Human Rights** which states that “everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers.”

However, there are associated concerns too of making internet a fundamental right:

- **Privacy Issues:** Privacy is the right of every individual. Unfortunately, in online world it has become quite hard rather impossible to safeguard one’s privacy. Our smart phones and various other internet services that we use, track down our movements.
- **Internet is merely a technology, nothing less but certainly nothing more.** For instance, technology indeed mattered for the Arab protests, but this did not make the Arab Spring a technological revolution. Social networks did not cause these movements, but they kept them alive and connected.
- The things that we call human rights must be among the things humans need in order to lead healthy, meaningful lives, like freedom from torture or freedom of conscience. The **Internet is valuable as a means to an end, but not as an end in itself.**
- Most modern human rights recognized come with some sort of enforcement mechanism, be it hard law (e.g. courts or compliance committees) or soft law (e.g. monitoring). Yet claims for the recognition of new fundamental rights should always be carefully examined. If they are rashly accepted, it could lead to a **practice of fragmentation and constant increase of human rights.**
- One can argue that the ‘visibility’ argument in favour of more human rights recognition does not take into account the flexibility of existing rights. Technological advances often change the way in which we exercise our rights and freedoms, and thus broaden the practical scope of these rights.

Conclusion:

The usefulness of the Internet cannot be overstated and the government should do everything possible to bridge the digital divide among its constituents. But declaring access to the Internet as a citizen’s right is not a defensible proposition.

Discuss in detail reasons for India to embrace Inclusive Growth.(250 words)

Indian economy by Dutta and Sundaram

Why this question:



The question is straightforward and is from the static portions of GS paper III.

Key demand of the question:

Discuss in detail the causes for which Indian setup necessitates inclusive growth.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Define what you understand by Inclusive growth.

Body:

Discuss briefly the basic elements of Inclusive growth.

Move on to discuss the reasons for India to embrace inclusive growth.

The recognition of the significance of inclusive growth in developing Asia has been generated by a rising concern that the benefits of remarkable economic growth have not been equitably shared.

Inclusive growth is required for sustainable development and impartial distribution of wealth.

Discuss the challenges involved.

Conclusion:

Conclude with ways and means to achieve inclusive growth.

Introduction:

The concept of **inclusive growth focuses on equitable growth for all sections of society**. This involves ensuring that fruits of growth and development reach the poor and marginalized sections as well. Inclusiveness is a multi-dimensional concept. Inequalities that include, social exclusion, discrimination, restrictions on migration, constraints on human development, lack of access to finance and insurance, corruption – are sources of inequality and limit the prospect for economic advancement among certain segments of the population, thereby perpetuating poverty.

Body:

Reasons for India to embrace Inclusive Growth:

- India is the 7th major country by area and 2nd by population. It is the 12th largest economy at market exchange rate. Yet, development is not visible in India and it's the neighbourhood nation, i.e., China is progressing at speedy rate.
- The agenda for inclusive growth was envisaged in the Eleventh Plan document which intended to achieve not only faster growth but a growth process which ensures broad-based improvement in the quality of life of the people, especially the poor, SCs/STs, other backward castes (OBCs), minorities and women and which seeks to provide equality of opportunity to all.
- The exclusion in terms of low agriculture growth, low quality employment growth, low human development, rural-urban divides, gender and social qualities, and regional disparities etc. are the problems for the nation.
- Decreasing of poverty and other disparities and raising of economic growth are major objectives of the nation through inclusive growth.
- Political leadership in the country plays a vital role in the overall development of the country. But, the study has found that politicians in India have a very low level of scientific literacy.
- Studies assessed that the cost of corruption in India amounts to over 10% of GDP. Corruption is one of the ills that prevent inclusive growth.



- Though child labour has been banned by the law in India and there are stringent provisions to deter this inhuman practice. Still, many children in India are unaware of education as their lives are spoiled to labour work.
- Literacy levels have to rise to provide the skilled workforce required for higher growth.
- Economic improvements in the country are overwhelmed by out dated philosophies and allegations by the politicians and opposition parties in India.
- Achievement of 9% of GDP growth for country as a whole is one of the boosting factor which gives the importance to the Inclusive growth in India.
- Inclusiveness benchmarked against achievement of monitor-able targets related to
 - Income & Poverty
 - Education
 - Health
 - Women & children,
 - Infrastructure
 - Environment
- At global scale, there is a concern about dissimilarities and exclusion and now they are also taking about inclusive approach for development.
- It is estimated that about 80% of India's labour force works in the informal economy.
- Jobs in the informal economy are typically insecure, with neither employment contracts nor regular pay, and very often workers are engaged on a day-to-day basis.
- The working conditions in the informal economy therefore resemble a low-productivity trap.
- At the most basic level, economic growth results from labour force growth and productivity growth of workers.

Way forward:

- In a democratic country India, majority of population living in rural India and to bringing them into the mainstream is main concern.
- The best way to realise inclusive growth is through developing people's talents. It is said by government authorities that a multidimensional approach towards education and skills development is essential to achieve growth.
- To address this challenge, inclusive growth with its focus on creating economic opportunities and ensuring equal access to them will play a key role.
- The challenge of skills shortage can be addressed through public private partnership.
- Special efforts to increase employment opportunities are essential as it is a necessary condition for bringing about an improvement in the standard of living of the people

Conclusion:

More and more countries are accepting it as the goal of development policy. Inclusive growth as a development notion is also being comprised by many development partners of developing countries



including bilateral and multilateral aid agencies, international organizations, nongovernment organizations, and civil society.

Government Budgeting. Investment models.

Health is a critical sector for achieving overall equitable human development in the country. In the Indian setup the idea of Public Private Partnership can bridge the investment deficit and improve the efficiency and outreach of service delivery.

Explain. (250 words)

[Live Mint](#)

Why this question:

To address shortage of qualified doctors and bridge gap in medical education, the Niti Aayog has come out with the public-private partnership model to link new or existing private medical colleges with functional district hospital to augment medical seats.

Key demand of the question:

Discuss the significance of PPP in health sector to the case of Indian scenario.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms wherever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Define what PPP is. Then explain the context of the question.

Body:

Highlight the fact that India has a dire shortage of qualified doctors. It is practically not possible for the Central/state government to bridge the gaps in the medical education with their limited resources and finances.

Discuss the issues prevalent in Indian health sector.

Explain in what way PPP model can address the issue.

Conclusion:

Conclude with way forward.

Introduction:

India takes pride in the fact that it is one of the fastest-growing economies in the world. But our heads will hang in shame if we look at India's health system. To address shortage of qualified doctors and bridge gap in medical education, the Niti Aayog has come out with the public-private partnership model to link new or existing private medical colleges with functional district hospital to augment medical seats.

Body:

Public healthcare scenario in India:

- The government spends 1.02% of the GDP on health compared to the global spending of 6%.
- There is a shortfall of 20% sub-centres, 22% public health centres and 32% community health centres.
- The average population served by one public sector allopathic doctor is 11 times higher than the World Health Organization's recommendations.
- High out of pocket expenditure to the tune of 60%. The excessive reliance on OOP payments leads to financial barriers for the poorest, thereby perpetuating inequalities in health care.



- Clearly, India is struggling to serve its population amid the rising burden of diseases along with poor coverage by public health on the other.
- In addition to these challenges, the private sector is poorly regulated when it comes to quality and pricing.

Potential of PPP model for providing universal healthcare in India:

- **Enhancing affordability:** There has been a steady increase in the number of drugs under price control, to make medicines affordable.
- **Enhances Inclusivity:** It's difficult for government alone to meet the healthcare infrastructure and capacity gaps in Tier II and Tier III cities as well as rural areas. To provide Health insurance- Karnataka's Yeshasvini Cooperative Farmer's Healthcare Scheme and Andhra Pradesh's Arogya Raksha Scheme can be cited as successful examples.
- **Financing Mechanism:** The partnership between the public and the private sectors in healthcare is important for several reasons including equity and for promoting economic development.
- **Infrastructure:** NITI Aayog has sought to infuse fresh life into PPP in healthcare delivery through a new model focused on district hospitals and new norms on pricing of procedures. The provisions for making available infrastructure of district hospitals to private providers for 30 years along with viability gap funding appears that we have got the design right for the PPP model.
- **Quality of Service:** Private healthcare in India usually offers quality service but is often expensive and largely unregulated. The Delhi government's new scheme is a novelty for the common man but has a precedent in several government schemes for employees which use public funds to provide private healthcare. e.g the Central Government Health Scheme (CGHS) has existed for decades and has been emulated by several states.
- **Capacity building and training:** private players can play a key role in capacity building and training through PPP modes by working with the public sector to better utilize the infrastructure of government hospitals.

Issues in public private partnership

- There is lack of inbuilt mechanism to decide how the government and the private sector share revenue and risks.
- Aim of Private sector is to maximize profit, which is inconsonance with governments aim of providing universal quality services to all
- Lack of a proper regulatory framework to regulate the health sector and partnership.
- Some PPP projects attempted earlier have failed, so there is apprehension about success of large scale PPP in health sector.

Measures needed:

- **Staunch and well-defined governance:** An institutional structure should be set up to foster, monitor and evaluate the PPPs. This needs to be established at the state-level under the leadership of the state health ministry.
- **Equitable representation of partners in the institutional framework:** Institutional structure is a cornerstone for development of a sustainable PPP project. It will help to meet consensus on shared responsibilities and roles and will facilitate communication among the partners leading to a strong sense of ownership and trust.
- **Evidence-based PPP:** Systematic research initiatives and mechanisms must be established to constantly understand the evolving needs and benefits to end users.



- **Regulate user fee:** One of the hurdles of engaging the private providers for public health service delivery is OOP expenditure. Therefore, it is important to regulate user fees of this sector under partnership.
- **Effective risk allocation and sharing:** Risks shall be allocated to the party best able to control and manage them so that value for money is maximised.

Conclusion:

To provide universal healthcare which is the need of hour given the dismal condition of healthcare sector in India. The key to success of PP partnership is mutual respect and trust with a common goal of providing quality care for all ages at affordable cost. This meaningful engagement may be the next game changer in healthcare for the country.

Budget documents aid in understanding the intention of the government, its priorities, policies and allocation of resources, In this context discuss in detail the process of budgeting followed in India.(250 words)

Indian polity by Lakshmikanth

Why this question:

The question is from the static portions of GS paper III.

Key demand of the question:

One has to discuss the process of Budget that is followed in the country and the significance of Budget documents.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Discuss what Budget is in brief.

Body:

The question is direct and very much straight forward.

Discuss briefly the concept of Budget, the processes involved; The budget has four stages viz., (1) estimates of expenditures and revenues, (2) first estimate of deficit, (3) narrowing of deficit and (4) presentation and approval of budget.

Explain the role of Budget documents in understanding the intention of the government.

Discuss the importance of having a Budget for the government.

Use an example to substantiate your answer better.

Conclusion:

Conclude that When it comes to budgeting, identifying areas of weakness helps the government to allocate resources in a useful and sustainable manner.

Efficient, effective and bottom up budgetary processes help determine efficacy of this planned document.

Introduction:

The Union Budget of India, referred to as the annual Financial Statement in Article 112 of the Constitution of India, is the annual budget of the Republic of India, presented each year on the last working day of February by the Finance Minister of India in Parliament. The budget has to be passed by the House before it can come into effect on April 1, the start of India's financial year. It establishes a financial roadmap for the country in the ensuing financial year. Every year the Department of Economic Affairs in the Ministry of Finance prepares the Union Budget which is presented by the Finance Minister.

**Body:**

There are several steps involved in the preparation, presentation and implementation of the Union Budget.

▪ The initial processes:

- The initial processes involved in the Budget-making begin in August-September, around six months prior to the presentation of the Budget.
- The Finance Ministry sends Budget Circulars containing skeleton forms and necessary instructions/guidelines to concerned ministries and departments.
- These circulars are then distributed amongst disbursing and field officers who provide details about financial expenditures and receipts of their department during the current and past fiscal year, and their financial requirements for the ensuing fiscal year.

▪ Accumulation and authorization of data:

- The data and estimates provided by ground-level officials are then scrutinized by top officials of their departments.
- Upon approval (or revision, if necessary), the data and estimates are then sent to the concerned ministries where they are examined again.
- Finally, the data and estimates are sent to the Finance Ministry.
- The Finance Ministry further scrutinizes these and correlates the estimates with the current economic state and the available resources to determine their feasibility.

▪ Composing the Budget:

- After analysing every aspect carefully, the Finance Ministry then allocates revenues to various administrative ministries and devises new public welfare schemes.
- At times, there are disputes between ministries over the allocation of resources.
- In such scenarios, the Finance Ministry consults the Union Cabinet or the Prime Minister.
- Their decision is deemed final in such scenarios.
- After completing the allocation of resources to future expenditures, the Finance Ministry in association with Central Board of Direct Taxes and Central Board of Excise and Customs prepares a report of the estimated revenues to be generated in the ensuing financial year.
- In the final stage, both the reports are consolidated to generate the final Union Budget.
- During this process, various departments of the Finance Ministry consult stakeholders in the public domain (such as farmers and small business owners) to gain more insights and prepare an efficient budget.

▪ Printing the Budget:

- The printing process of the Union Budget begins with the observance of a tradition, 'the halwa ceremony'.



- In this, the Finance Minister along with other officials and staff involved in the process eat halwa (a traditional Indian dessert).
- Post completion of the ceremony, the printing process of the Union Budget begins.
- During this process, all the officials and staff involved in Budget-making remain confined to the premises of the ministry, isolated from any contact with the outside world, since they have the knowledge of what has gone into the Budget days before it is tabled in Parliament.
- **Presenting the Budget:**
 - The Union Budget is presented in the Parliament by the Finance Minister. For the past few years, the Union Budget is presented on a scheduled date, February 1.
 - In an election year, the Budget is prepared and presented twice.
 - Initially, a vote on account or interim budget — which is an estimate of expenditures and receipts of the next two-four months — is presented.
 - After the election, the final Budget for the rest of the fiscal year is presented by the new government.
 - In parliament, the budget goes through 5 stages
 - Presentation of budget with Finance Minister's speech
 - General discussion of the budget. After this, there is an adjournment of houses so that standing committees scrutinises the demand for grants for a month.
 - Voting on demand for grants in Lok Sabha
 - Passing of appropriation bills
 - Passing of Finance bills.

Conclusion:

Indian constitution under Article 112-117 enshrines powers of parliament in the enactment of the Budget. According to article 112-117, any proposal for expenditure and demand for a grant can be made only on the recommendation of the President. The parliament has to pass a financial bill within 75 days of its introduction. After discussion in both the houses on demand for Grants, Financial bill and appropriation bill and voting of the Lok Sabha Budget is enacted and expenditure can be incurred from the consolidated fund of India.

Effects of liberalization on the economy, changes in industrial policy and their effects on industrial growth

Discuss the challenges facing the Indian Textile Sector in detail and suggest ways and means to upsurge domestic manufacturing and promotion of exports in the this Sector.(250 words)

[Business Standard](#)

[Financial Express](#)

Why this question:



The question aims to analyse the challenges of textile industry in the country and need for a strong policy to address the issues and make the sector a strong and flourishing one.

Key demand of the question:

Discuss the challenges facing the Indian Textile Sector in detail and suggest ways and means to upsurge domestic manufacturing and promotion of exports in the this Sector.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

First discuss key statistics of the textile sector. Indian textile industry is one of the largest industries in India. It is the second largest industry in terms of providing employment opportunities to more than 35 million people in the country. Indian Textile industry contributes to 7 per cent of industrial output in terms of value, 2 per cent of India's GDP and to 15 per cent of country's export earnings.

Body:

List the challenges of the Indian Textile Sector –

The Indian Textile Sector is losing to competition because of lack of FTAs (Free Trade Agreements) with the EU and the USA.

The small scale of business is making it difficult for textile manufacturers to compete on cost with players from outside.

India is facing huge competition from other countries in Ready-made Garment (RMG) Exports, particularly cotton. And while the world of fashion is moving towards "Blends", India is not making many blended apparel items. So on the one side our traditional items are facing competition, and on the other side we are behind in Product Diversification.

Textile imports from Vietnam and Bangladesh are cheaper for buyers across the world.

Suggest remedies to the above challenges.

Conclusion:

Conclude that Exports are critical, but textile manufacturers should focus on the opportunities in the domestic market too.

Introduction:

The Indian textile and apparel industry can be broadly divided into two segments – yarn & fibre, and processed fabrics & apparel. Indian textile industry has some deep-rooted problems which needs to be addressed with long-term sustainable solutions

Body:

The government recently said the **new Textiles Policy 2020** being formulated by the Centre is aimed at developing in the country a competitive textile sector which is modern, sustainable and inclusive. This new policy will have a special focus on manufacturing of apparel and garment, technical textiles, man-made fibre products and exports.

The policy will entail the strategy and action plan for the country's textile and apparel segments, while maintaining pre-eminent position in handicraft and handloom sectors.

Challenges faced by Indian textiles sector:

- **Market Reality:** India's textile industry grapples with domestic issues including outdated technology, inflexible labour laws, infrastructure bottlenecks, and a fragmented nature of the industry.



- The textiles sector in India, primarily dominated by the unorganized and small players, had taken a major hit with demonetization and the implementation of the goods and services tax (GST).
- **Global Policies:** According to the WTO's Agreement on Subsidies and Countervailing Measures, a country needs to phase out export subsidies for a product as it achieves export competitiveness, defined as 3.25% share in world trade, and the per-capita income reaches more than \$1,000 per annum.
- As per this agreement, India is under pressure to end export subsidy for the textiles sector by 2018.
- This implies that the existing subsidy schemes including the Merchandise Export from India Scheme (MEIS) and the Export Promotion Capital Goods (EPCG) Scheme will get affected by the same.
- **Demand for MMF:** Globally, manmade textiles and garments are in high demand, with the ratio of cotton-to-manmade-fibre consumption at 30:70.
- India, despite being the second-largest textiles exporter in the world, lags in this category because of unavailability of manmade fibres at competitive prices.
- **Free-trade pacts:** like the South Asia Free Trade Agreement (SAFTA) have led to intense competition from countries like Bangladesh which have zero-duty access to the Indian market. The government should take a re-look at such pacts and try to work out a solution.
- The government should aim at driving scale across the textiles value chain by encouraging large investment, consolidation of firms and enlargement of clusters.
- **Impact of recent reforms:** The sector went through a phase of stagnating exports, demonetisation, bank restructuring and implementation of the Goods and Services Tax (GST).
- India, which was the second largest exporter of Textile & Clothing between 2014 and 2017 after China, slipped to the fifth place losing its position to Germany, Bangladesh and Vietnam.
- **Delay in disbursement of subsidies:** Fast-track disbursement of subsidies for technology up-gradation under the TUFs scheme to help the industry modernise the operation.

Measures needed:

- Government needs to move away from export-specific subsidy, which violates WTO norms, to focus on regional and cluster subsidies, technology upgradation and skill development subsidies, which benefit all the producers.
- In India, cotton and manmade fibres (MMF) have differential tax treatment, here fibre neutrality will give a boost to the industry.
- Under differential tax treatment cotton is taxed at 5% and manmade fibres at 12%.
- In fact, of the total textiles and clothing exports from India, cotton accounts for around 75%, there is a need to increase production with the global consumption patterns.
- While India has abundant supply of labour, flexibility in labour laws and adequate skilling will give a big boost to the textiles industry.
- For instance, women should be allowed to work in all three shifts, after taking into account adequate safeguard measures.
- Technology upgradation schemes will help Indian players to increase both their productivity and competitiveness.
- In addition, the government needs to carefully evaluate the various trade agreement opportunities Bangladesh and Vietnam benefit from favourable access to some of the big apparel markets.



- The government also needs to re-look at fibre neutrality and evaluate various trade agreement opportunities, while domestically focusing more on technology upgradation and skill development.

Conclusion:

There is a need to expand the production base to non-traditional areas where abundant land and labour are available.

Discuss the key objectives of industrial policy in India and explain how does it impact on the economy and industry?(250 words)

India Year Book 2019

Why this question:

The question is straightforward and is from the static portions of the GS paper III.

Key demand of the question:

Discuss in detail key objectives of industrial policy in India and explain its impact on the economy.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Explain that Industrial Policy is a typical character of a mixed economy. It is policy of government intervention which is sector specific and is aimed at giving preferential treatment to a particular sector over others.

Body:

First explain why an industrial policy is desirable.

Present arguments for and against industrial policy.

Discuss the key objectives.

Explain the impact on the economy and industry in specific aspects.

Conclusion:

Conclude with importance of a strong Industrial policy for the growth and development of the country.

Introduction

In 1991, when India faced a severe economic crisis, the government passed a new Industrial Policy resolution. The **Industrial policy of 1991** set out directions for industrialization in an economy that began its journey in liberalization. It dealt with liberalizing licensing and measures to encourage foreign investments.

The Government of India will be introducing a New Industrial Policy that will replace the 27-year-old existing policy and pave the way for the promotion of new technology and reduced regulations. The policy aims to create jobs over the next two decades, promote foreign technology transfer and attract \$100 billion FDI annually.

Body

Objectives of Industrial Policy in India

- Liberalizing the industry from the regulatory devices such as licenses and controls.
- Enhancing support to the small scale sector.



- To maintain a sustained growth in productivity;
- To enhance gainful employment;
- To achieve optimal utilization of human resources;
- To attain international competitiveness; and
- To transform India into a major partner and player in the global arena.
- Increasing competitiveness of industries for the benefit of the common man.
- Ensuring running of public enterprises on business lines and thus cutting their losses.
- Providing more incentives for industrialization of the backward areas, and
- Ensuring rapid industrial development in a competitive environment
- Promoting workers participation in management, enhancing their welfare and equipping them to deal with inevitability of technological change.

Impact on economy and industry

- **Opening up of Industry:** Sectors that were earlier exclusively reserved for public sector were reduced. Presently, **only two sectors- Atomic Energy and Railway operations-** are reserved exclusively for the public sector.
 - This has led to efficiency of markets and increased India's competitiveness.
- **De-licensing:** Abolition of Industrial Licensing for all projects except for a short list of industries. There are only 4 industries at present related to security, strategic and environmental concerns, where an industrial license is currently required-
 - Electronic aerospace and defence equipment
 - Specified hazardous chemicals
 - Industrial explosives
 - Cigars and cigarettes of tobacco and manufactured tobacco substitutes
- **Disinvestment of Public Sector:** Government stakes in Public Sector Enterprises were reduced to enhance their efficiency and competitiveness. Government in Budget 2020 announced raising Rs 1.20 lakh crore through disinvestment.
 - The idea is, for the government to play the role of facilitator and a regulator.
- **Liberalization of Foreign Investment:** This was the first Industrial policy in which foreign companies were allowed to have majority stake in India. In 47 high priority industries, upto 51% FDI was allowed. For export trading houses, FDI up to 74% was allowed.
 - Today, there are numerous sectors in the economy where government allows 100% FDI through automatic route.
 - It has increased our ease of doing business and India stands at 63rd position from 100th position in 2017.



- **Foreign Technology Agreement:** Automatic approvals for technology related agreements.
- **MRTTP Act** was amended to remove the threshold limits of assets in respect of MRTTP companies and dominant undertakings. MRTTP Act was replaced by the Competition Act 2002.

Significance of Industrial Policy for India

- The 1991 policy made **'License, Permit and Quota Raj'** a thing of the past. It attempted to liberalize the economy by **removing bureaucratic hurdles** in industrial growth.
- Limited role of Public sector reduced the burden of the Government.
- The policy provided **easier entry of multinational companies**, privatization, removal of asset limit on MRTTP companies, liberal licensing.
 - All this resulted in increased competition, that led to lower prices in many goods such as electronics prices. This brought domestic as well as foreign investment in almost every sector opened to private sector.
- The policy was followed by special efforts to increase exports. Concepts like Export Oriented Units, Export Processing Zones, Agri-Export Zones, Special Economic Zones and lately National Investment and Manufacturing Zones emerged. All these have benefitted the export sector of the country.

The Government of India will be introducing a New Industrial Policy that will replace the 1991 policy and pave the way for the promotion of new technology and ease of doing business.

Conclusion

- It is time for enabling accelerated reforms for greater strategic engagement and ensure that India is integrated into the global value chains. It is time to Reform, Perform and Transform.
- A comprehensive, actionable, outcome-oriented industrial policy will enable Industry to deliver a larger role in the economy; to fulfil its role as the engine of growth and to shoulder the responsibility of adding more value and jobs.

What is liberalization in education? Discuss the impact of it on Indian Education system. (250 words)

Indian economy by Dutta and Sundaram

Why this question:

The question aims to discuss the impact of liberalization upon the education system of India.

Key demand of the question:

Explain the impact of liberalization on education in general and specifically present the Indian education system scenario.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly highlight the concept of liberalization.

Body:



Liberalization refers to relaxing certain reforms and policies in India.

Our policy in terms of education is focused more on only expanding the system with no focus on for quality education. One of the basic problems today is the inability of the university system to provide higher education to all who aspire for it.

Discuss its importance to education.

Expand upon the impact it rendered to Indian education system.

Conclusion:

Conclude with way forward.

Introduction

Liberalization refers to relaxing certain reforms and policies in India. Usually, the term is used in reference to Economic Liberalization. Though India is Economically Liberal, the Education System is not Liberal. There are many reasons, one of them is that the national education should become a commodity that only a few can afford.

According to the Article 25 of the Companies Registration Act, educational institutes in India can be set up by trusts, societies and charitable companies, but the profits cannot be taken out of the institution and have to be reinvested. However, the government does not define and clarify rules for foreign universities to set up campuses in India. Interested parties have been hesitant about moving forward until they are clear about the degree of regulation, funding, and other issues.

Body

Liberalization in India

Positive Impact

- Liberalisation will bring a constant stream of funding which will also facilitate a research-based career and make it a viable option for the future of Indian teachers and students.
- It will expand the supply which is in shortage and the competition among educational institutions will ensure that they do not charge an excessive premium for education. Increase in the supply of education will automatically result in the fall in education expenditure.
- The Indian economy which is majorly fueled by the service industry will get a boost with the education sector becoming a large chunk of the economic source.
- Hundreds of thousands of Indian students study abroad at an annual estimated cost of around US\$ 1 billion and it can even stem the exodus of thousands of students who left the country to study abroad. It also curbs brain drain which is also a nation's loss.
- Allowing corporates would ensure the development of better industry-oriented graduates with specific skill sets.
- Increased in educated population implies rapid developments in technology and communications. It also implies the shift of society from industrialization based towards an information-based society.
- Liberalisation offers students an option of studying close to home with the added benefit of a degree which will be valid worldwide.

Negative Impact



- The international higher education is largely an unregulated market. While no doubt that there are prestigious universities hoping to build links overseas, recruit top students to their home campuses and strengthen their brand abroad.
 - But there is no dearth of mere sub-prime and low-end private institutions which are seeking to stave off bankruptcy through the export market and there are even a few respectable universities which have been forced by government funding cutbacks to raise cash elsewhere.
- Students and local institutions in developing countries are also similarly unregulated. At many times ill-informed and often naive.
 - Students tend to avail such services without much information or understanding.
 - Uninformed or simply dubious institutions in developing countries may form partnerships with low-quality colleges and universities in India. Students may be falsely tempted under the guise of foreign label.
- There is also the risk of fake institutes which are looking to stuff their pockets whenever the opportunity arises.
- Local institutes which have limited capital will not be able to survive, rendering many jobless. Even the reputed ones will face competition as their national certificates will be less valued as compared to the world recognized certificates.

Conclusion

- A possible solution to this policy is that the government should regulate the sector. Foreign universities can be regulated by giving them a limited period trial, a probation period. And it would on the basis of performance in the trial period, that these universities will be allowed to set up long-term operations. To ensure that national interests are served and the students do not receive an inferior service from unscrupulous providers, there needs to be transparency. This will also help universities think about their motivations for entering the market.

Major crops cropping patterns in various parts of the country, different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers Massive inefficiency in the grain management system under the National Food Security Act (NFSA) of the country calls for pressing attention. Discuss the needs for urgent reforms in grain management system. (250 words)

[Indian Express](#)

Why this question:

The article provides for a detailed analysis as to how Reforms in grain management system could free up resources for infrastructure investment.

Key demand of the question:

The answer must bring out the existing issues with grain management and in what way newer reforms are the need of the hour.

Directive:



Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Suggest few facts highlighting the importance of grain management to the output of Agriculture. Agriculture still engages about 44 per cent of India's workforce.

Body:

First highlight massive inefficiency in the grain management system under the National Food Security Act (NFSA).

Use data from the article and highlight the inefficiencies in the system.

Discuss the role of FCI in management of grains in the country.

Explain what needs to be done? Suggest measures to overcome the situation.

Conclusion:

Conclude with way forward.

Introduction:

The National Food Security Act (NFSA) gives certain quantities of wheat and rice to 67 per cent of the population at Rs 2/kg and Rs 3/kg respectively, while the economic cost of these to the Food Corporation of India is Rs 25/kg and Rs 35/kg respectively.

The FCI had pending bills of Rs 1.86 lakh crore that have not been cleared by the government, and that it has been asked to borrow more and more to finance its operations. The grain stocks with the FCI are far more than double the buffer stock norms as on January 1, every year.

Body:

Need for urgent reforms in grain management system is due to the following:

- **Issues with procurement:**

- Open-ended Procurement: All incoming grains accepted even if buffer stock is filled creating a shortage in the open market.
- The recent implementation of Nation food security act would only increase the quantum of procurement resulting in higher prices for grains.
- The gap between required and existing storage capacity.
- The **open market operations (OMO)** are much less compared to what is needed to liquidate the excessive stocks.

- **Issues with storage:**

- Inadequate storage capacity with FCI.
- Food grains rotting or damaging on the CAP or Cover & Plinth storage.
- The money locked in these excessive stocks (beyond the buffer norm) is more than Rs 1 lakh crore.

- **Issues with allocation of food grains:**

- Inaccurate identification of beneficiaries.



- Illicit Fair Price shops: The shop owners have created a large number of bogus cards or ghost cards (cards for non-existent people) to sell food grains in the open market.
- **Issues with transportation:**
- Leakages in food grains distribution to be reduced as most leakages in PDS takes place in initial stages.

Important recommendations made by Shanta Kumar Committee.:

- Reduce the number of beneficiaries under the Food Security Act—from the current 67 per cent to 40 per cent.
- While the poor under the Antyodaya category should keep getting the maximum food subsidy, for others, the issue price should be fixed at, say, 50 per cent of the procurement price (as was done under Atal Bihari Vajpayee for the BPL category)
- Allow private players to procure and store food grains.
- Stop bonuses on minimum support price (MSP) paid by states to farmers, and adopt cash transfer system so that MSP and food subsidy amounts can be directly transferred to the accounts of farmers and food security beneficiaries.
- Limit the procurement of rice particularly in the north-western states of Punjab and Haryana where the groundwater table is depleting fast, and invite private sector participation in grain management
- FCI should involve itself in full-fledged grains procurement only in those states which are poor in procurement. In the case of those states which are performing well, like Haryana, Punjab, Andhra Pradesh, Chhattisgarh, Madhya Pradesh and Odisha, the states should do the procurement.
- **Abolishing levy rice:** Under levy rice policy, government buys certain percentage of rice (varies from 25 to 75 per cent in states) from the mills compulsorily, which is called levy rice. Mills are allowed to sell only the remainder in the open market.
- Deregulate fertiliser sector and provide cash fertiliser subsidy of Rs 7,000 per hectare to farmers.
- **Outsource of stocking of grains:** The committee calls for setting up of negotiable warehouse receipt (NWR) system. In the new system, farmers can deposit their produce in these registered warehouses and get 80 per cent of the advance from bank against their produce on the basis of MSP.
- Clear and transparent liquidation policy for buffer stock: FCI should be given greater flexibility in doing business; it should offload surplus stock in open market or export, as per need.

Conclusion:

The Committee recommendations however was criticized due to suggestions like limiting NFSA, cash subsidy, privatization of FCI despite suggesting useful reforms to reform FCI, PDS. A closer scrutiny in the recommendation is needed today in times of agricultural distress & drought prone years.

Irrigation is pivotal to agricultural, social, economic growth of nation. Discuss in detail the benefits and concerns associated with Irrigation systems in the country.(250 words)

A Comprehensive Geography by Khullar

Why this question:

The question is from the static portions of the GS paper 3.

Key demand of the question:

Discuss the significance of Irrigation system and the concerns associated with it.



Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Quote first the significance of irrigation system to agriculture of the country.

Body:

Irrigation has provided stability to food production. It is critical, yet a vital input of agriculture production process. Civilizations have risen and fallen with the growth and decline of their irrigation systems, while others have maintained sustainable irrigation for thousands of years. Many of the problems in irrigated agriculture can be mitigated or avoided by improved technology and management, and by adequately addressing cultural, social, and environmental aspects.

Discuss the benefits of Irrigation in detail and the challenges/concerns posed.

Suggest what needs to be done to overcome such challenges.

Conclusion:

Conclude that Irrigation is pivotal to agricultural, social, economic growth of nation. Irrigation has provided stability to food production.

Introduction:

Irrigation is the process of applying water to the crops artificially to fulfil their water requirements. Nutrients may also be applied to the crops through irrigation. The various sources of water for irrigation are wells, ponds, lakes, canals, tube-wells, and even dams. Irrigation offers moisture required for growth and development, germination, and other related functions.

Body:

Types of Irrigation:

There are different types of irrigation practised for improving crop yield. These types of irrigation systems are practised based on the different types of soils, climates, crops and resources. The main types of irrigation followed by farmers include:

- **Surface Irrigation:**
 - In this system, no irrigation pump is involved. Here, water is distributed across the land by gravity.
- **Localized irrigation:**
 - In this system, water is applied to each plant through a network of pipes under low pressure.
- **Sprinkler irrigation:**
 - Water is distributed from a central location by overhead high-pressure sprinklers or from sprinklers from the moving platform.
- **Drip Irrigation:**
 - In this type, drops of water are delivered near the roots of the plants. This type of irrigation is rarely used as it requires more maintenance and



- **Centre Pivot Irrigation:**
 - In this, the water is distributed by a sprinkler system moving in a circular pattern.
- **Sub-irrigation:**
 - Water is distributed through a system of pumping stations gates, ditches and canals by raising the water table.
- **Manual Irrigation:**
 - This a labour intensive and time-consuming system of irrigation. Here, the water is distributed through watering cans by manual labour.

Benefits of Irrigation:

- Insufficient and uncertain rainfall adversely affects agriculture. Droughts and famines are caused due to low productivity. Irrigation helps to increase productivity even in low rainfall.
- The productivity on irrigated land is higher as compared to the un-irrigated land.
- Multiple cropping is not possible in India because the rainy season is specific in most of the regions. However, the climate supports cultivation throughout the year. Irrigation facilities make it possible to grow more than one crop in most of the areas of the country.
- Irrigation has helped to bring most of the fallow land under cultivation.
- Irrigation has stabilized the output and yield levels.
- Irrigation increases the availability of water supply, which in turn increases the income of the farmers.

Threats posed by Irrigation:

- **Delays in completion of projects:** In most of the projects, there have been delay in construction of field channels and water courses, land levelling and land shaping.
- **Inter-state Water disputes:** Irrigation is a state subject in India. As a result, difference with regard to storage, priorities and use of water arise between different states. Narrow regional outlook brings inter-state rivalries over distribution of water supply.
- **Regional disparities in irrigation development:** The Ninth Five Year Plan Document estimated that the water resource development in North Eastern region through major, medium and minor schemes is only at the level of 28.6 per cent whereas in the Northern region it has reached about 95.3 per cent.
- **Water-logging and salinity:** Introduction of irrigation has led to the problem of water logging and salinity in some of the states.
- **Increasing cost of irrigation:** The cost of providing irrigation have been increasing over the years from the first five-year plan to tenth five-year plan.
- **Decline in water table:** There has been a steady decline in water table in the recent period in several parts of the country, especially in the western dry region, on account over exploitation of ground water and insufficient recharge from rain-water.

Measures needed:

- Large public and private investment for expanding the irrigation system to accelerate agricultural growth and to meet the needs of food security;
- More efficiency in managing the irrigation system;
- Speedy exploitation of irrigation potential from major and medium sources;



- Completion of on-going projects, improvement in the utilisation of irrigation potential and expansion of rural electrification in the eastern region and replacement of high-cost diesel pump sets;
- Ensuring a conjunctive use of surface and ground water;
- The original Gadgil formula, which, earmarked 10 per cent of the total resource to the State Plans for major and medium irrigation and power projects should be revived;
- A major part of saving of fertiliser subsidy be given to States as grant for irrigation expansion; Suitable incentives be extended for advancing hi-tech irrigation systems like the microprocessor-based drip irrigation technology that has proven ability to save 25 per cent chemical fertilisers, halve the water used and nearly double the yields;
- Farmers stakes in irrigation work be raised by conferring on them some degree of co-ownership the irrigation system; and
- A comprehensive watershed management plan need be formulated and effectively implemented.

Conclusion:

The farmers should be acquainted with the type of soil moisture, quality of irrigation water, frequency of irrigation for the proper implementation of irrigation systems.

What are the different types of cropping patterns prevalent in India? Discuss the diversity of cropping pattern across the country.(250 Words)

A comprehensive geography by Khullar

Why this question:

The question is directly from the static portions of GS paper III.

Key demand of the question:

Discuss in detail the different types of cropping patterns prevalent in India and explain the diversity of cropping pattern across the country.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Start by explaining what you understand by a cropping pattern.

Body:

Cropping pattern is the yearly sequence and spatial arrangement of crops and fallow on a given area. Cropping system comprises all cropping patterns grown on the farm and their interaction with farm resources, other household enterprises and the physical, biological, technological and sociological factors or environments.

Discuss the determining factors of a cropping pattern.

Explain the spatial aspect across the country.

Conclusion:

Conclude with importance of having a suitable cropping pattern for good yields.

Introduction:

Cropping pattern is a dynamic concept because it changes over space and time. It can be defined as the proportion of area under various crops at a point of time. In other words, it is a yearly sequence and spatial arrangement of sowing and fallow on a given area. In India, the cropping pattern determined by rainfall, climate, temperature, soil type and technology.

**Body:****Major important cropping patterns of India:**

Rabi crops are sown in winter from October to December and harvested in summer from April to June. Some of the important Rabi crops are wheat, barley, peas, gram and mustard. Though, these crops are grown in large parts of India, states from the north and north-western parts such as Punjab, Haryana, Himachal Pradesh, Jammu and Kashmir, Uttarakhand and Uttar Pradesh are important for the production of wheat and other rabi crops. Availability of precipitation during winter months due to the western temperate cyclones helps in the success of these crops. However, the success of the green revolution in Punjab, Haryana, western Uttar Pradesh and parts of Rajasthan has also been an important factor in the growth of the above-mentioned rabi crops.

Kharif crops are grown with the onset of monsoon in different parts of the country and these are harvested in September-October. Important crops grown during this season are paddy, maize, jowar, bajra, tur (arhar), moong, urad, cotton, jute, groundnut and soyabean. Some of the most important rice-growing regions are Assam, West Bengal, coastal regions of Odisha, Andhra Pradesh, Telangana, Tamil Nadu, Kerala and Maharashtra, particularly the (Konkan coast) along with Uttar Pradesh and Bihar. Recently, paddy has also become an important crop of Punjab and Haryana. In states like Assam, West Bengal and Odisha, three crops of paddy are grown in a year. These are **Aus, Aman and Boro**.

In between the Rabi and the kharif seasons, there is a short season during the summer months known as the **Zaid season**. Some of the crops produced during 'zaid' are watermelon, muskmelon, cucumber, vegetables and fodder crops. Sugarcane takes almost a year to grow.

Diversity of cropping patterns across the country:

- **Rice-Wheat:** UP, Punjab, Haryana, Bihar, West Bengal, Madhya Pradesh.
- **Rice-Rice:** Irrigated and Humid coastal system of Orissa, Tamil Nadu, Andhra Pradesh, Karnataka and Kerala.
- **Rice- Groundnut:** Tamil Nadu, Andhra Pradesh, Karnataka, Orissa and Maharashtra
- **Rice-Pulses:** Chhattisgarh, Orissa and Bihar.
- **Maize-Wheat:** UP, Rajasthan, MP and Bihar.
- **Sugarcane-Wheat:** UP, Punjab and Haryana accounts for 68% of the area under sugarcane. The other states which cover the crops are; Karnataka and MP.
- **Cotton-Wheat:** Punjab, Haryana, West UP, Andhra Pradesh, Karnataka, Tamil Nadu.
- **Soya bean-Wheat:** Maharashtra, MP and Rajasthan
- **Legume Based Cropping Systems (Pulses-Oilseeds):** MP, Gujarat, Maharashtra, Andhra Pradesh and Karnataka.

Factors affecting Cropping pattern: Cropping pattern of any region depends upon many factors

- **Physical and Technical Factors:**
 - These include the physical characteristic as soil, climate, weather rainfall etc. In the dry regions where the rainfall is scanty and where there is high uncertainty of monsoons, the dependence is on jowar and bajra. Water logging areas cultivate rice.
 - Cropping pattern also depend upon irrigation facilities. Where ever water is available, not only can a different crop be grown but even double or triple cropping will be possible.
- **Economic Factors:**



- Economic motivation is the most important in determining the cropping pattern of the country. Among the various economic factors affecting crop pattern, the following are important:
 - **Price and Income Maximisation:** Price variations exert an important influence on acreage shifts. The variation in the inter-crop prices led to shifts in acreage as between the crops.
 - **Farm Size:** There is a relationship between the farm size and the cropping pattern. The small farmers are first interested in producing food grain for their requirements. Small holder therefore devotes relatively small acreage to cash crops than large holders.
 - **Insurance against risk:** The need to minimise the risk of crop failures not only explains diversification but also some specific features of crop patterns.
 - **Availability of Inputs:** Seeds, fertilizers, water storage, marketing, transport etc. also affect the cropping pattern.
 - **Tenure:** Under the crop sharing system, the landlord has a dominant voice in the choice of the cropping pattern and this helps in the adoption of income maximising crop adjustments.
- **Infrastructure facilities:**
 - Irrigation, transport, storage, trade and marketing, post-harvest handling and processing etc
- **Government Policies:**
 - The legislative and administrative policies of the government may also affect the cropping pattern. Food Crops Acts, Land Use Acts, intensive schemes for paddy, for cotton and oilseeds, subsidies affect the cropping pattern.
 - MSP – farmers shifting to wheat, rice
 - Green Revolution – skewed cropping pattern in Northern India towards wheat and rice from coarse cereals and pulses
- **Social factors**
 - Food habits also play a role – East and South India prefers rice as staple food while it is wheat in North India.

Conclusion:

The cropping pattern in India has undergone significant changes over time. As the cultivated area remains more or less constant, the increased demand for food because of increase in population and urbanisation puts agricultural land under stress resulting in crop intensification and substitution of food crops with commercial crops.

**“ICT is becoming the facilitator of socio-economic development in rural India”,
Elucidate.(250 words)**

[Insights On India](#)

Why this question:

The question is from the static portions of the GS paper III, aims to evaluate the role of ICT in the aid of farmer.

Key demand of the question:

Discuss the aspects of ICT that contribute to the socio-economic development in rural India.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.



Structure of the answer:

Introduction:

Highlight that ICT is becoming the facilitator of socio-economic development in rural India with its obvious facilities by way of health, education, financial services and employment avenues, etc. It can help the bridge gaps by providing 'e' and 'm' services.

Body:

Explain that the ICT offering meant for rural sector can be classified into three categories:

Those solutions which aim are aimed at empowerment

Those which would do enablement.

Those for market expansion.

Quote recent case studies such as e-chaupal to substantiate your answer better.

Discuss the pros and cons of having ICT aid the farming process.

Conclusion:

Conclude that E-Agriculture; a new area of knowledge emerging out of convergence of IT and farming techniques is the future.

Introduction:

ICT can be interpreted broadly as “technologies that facilitate communication and the processing and transmission of information by electronic means.” ICT promises a fundamental change in all aspects of our lives, including knowledge dissemination, social interaction, economic and business practices, political engagement, media, education, health, leisure and entertainment.

Body:

Evolving Internet in India:

- Commercial Internet services in India were launched in August 1995.
- The initial launch of Internet in 1995 was with dial-up access speeds of upto 9.6 kbps.
- The initial launch of Internet services was with a rate of Rs25, 000 for a 250-hour TCP/IP (Transmission Control Protocol/Internet Protocol) account applicable for commercial organizations (amounting to Rs100 per hour).
- The number of Internet users in India was expected to reach 450-465 million by June, according to the Internet and Mobile Association of India (Iamai) and market researcher IMRB.
- Around 72% of Internet users in India are less than 35 years of age,
- 80% of all web traffic in India emanates from the mobile—second highest in the world, after Nigeria.
- Total number of telephone subscribers were 1,210.84 million as of 17 June, according to Trai.
- Wireless accounted for 1,186.84 million subscriptions.
- Broadband subscribers stood at 301 million at the end of June, according to Trai.

Internet has emerged as a potent tool that can lead to socio- economic empowerment:

• **ICT and agriculture:**

- The vast majority of poor people lives in rural areas and derives their livelihoods directly or indirectly from agriculture.
- Increasing the efficiency, productivity and sustainability of small-scale farms is an area where ICT can make a significant contribution. Farming



involves risks and uncertainties, with farmers facing many threats from poor soils, drought, erosion and

- ICTs can deliver useful information to farmers about agriculture like crop care and animal husbandry, fertilizer and feedstock inputs, pest control, seed sourcing and market prices.
- **ICT for Education:**
 - Moreover, appropriate use of ICTs in the classroom fosters critical, integrative and contextual teaching and learning; develops information literacy (the ability to locate, evaluate and use information).
 - Thus, it improves the overall efficiency of the delivery of education in schools and educational management institutions at the national, state/provincial and community level.
 - The use of ICTs in education aims to improve the quality of teaching and learning as well as democratize the access to education.
- **ICT for Economic Development:**
 - Information and Communication Technology has a vital role in connecting the rural community to outside world for exchange of information, a basic necessity for economic development.
 - Effective use of ICT can demolish geographical boundaries and can bring rural communities closer to global economic systems and be of meaningful help to the underprivileged.
- **Employment Opportunities:**
 - Poor people in rural localities have lack of opportunities for employment because they often do not have access to information about them.
 - One use of ICTs is to provide on-line services for job placement through electronic labour exchanges in public employment service or other placement agencies
- **ICT in e-Governance:**
 - The poverty can be adequately addressed by effective use of e-governance and ICT application in environmental management. Improved governance by using ICT can have direct impact in reducing poverty and improving the environment.
 - ICT can contribute in a large way in making government processes more efficient and transparent by encouraging communication and information sharing among rural and marginalized people.
- **ICT in Capacity-building and empowerment:**
 - Communities and farmer organisations can be helped through the use of ICTs to strengthen their own capacities and better represent their constituencies when negotiating input and output prices, land claims, resource rights and infrastructure



- ICT enables rural communities to interact with other stakeholders, thus reducing social isolation.
- It widens the perspective of local communities in terms of national or global developments, opens up new business opportunities and allows easier contact with friends and relatives. A role is also played by ICT in making processes more efficient and transparent.
- It helps in making laws and land titles more accessible. Global Positioning Systems (GPS) linked to Geographical Information Systems (GIS), digital cameras and internet, help rural communities to document and communicate their situation.
- Rural communities benefit from better access to credit and rural banking facilities.
- Recent mobile banking initiatives offer further scope to reduce costs and stimulate local
- The Indian AMUL programme automates milk collection and payments for its 500,000 members, thereby enhancing transparency of the milk volume and quality collected and ensuring fair payments to farmers.
- **ICT and Service delivery mechanisms:**
 - There is a huge gap between information residing in agricultural knowledge centres and rural communities.
 - At local level, multi-stakeholder mechanisms are important to make relevant information accessible to end users. Intermediary organizations have to connect rural communities to available Users will increasingly want tailor-made, quality answers to their questions.
 - In the Agricultural Clinics in India customers get answers within one to two days.
 - Mobile Q&A services are being piloted in India.
 - At national level, mechanisms need to be in place to ensure learning and information sharing.
- **ICT and Health:**
 - Health care is one of the most promising areas for poverty alleviation.
 - ICTs are being used in India to facilitate remote consultation, diagnosis and treatment.
 - Delivering health care with ICTs enables health care professionals and institutions to address the critical medical needs of rural communities, especially those in remote locations and those that lack qualified medical personnel and services.
- **Role of ICT under climate change:**
 - ICTs can enable access to the set of resources in the event of climate change related shocks or disturbances.
 - ICTs provide access to relevant data and information that is first processed at an individual level, then facilitate communication and interaction between a wide range of stakeholders, and ultimately enable cooperation, which can translate into adaptive



actions being implemented with the participation of a wide range of stakeholders.

- ICTs can also speed up access to information.
- This is particularly important when an acute climate related shock such as landslide or flood
- Mobile based telecommunications networks allow rapid communication of information, thus improving the speed of disaster warning, response and recovery

Conclusion:

The use of ICT tools help in strengthening social networks, empowerment and participation, as well as fostering productive processes at the local level through the provision of employment and skills, as well as support services for micro-enterprise activities. In rural communities of developing countries, with limited capacities and resources to respond to the effects of extreme natural hazards, drought, landslides, floods, and to the impacts of these events on local social systems (e.g. health, infrastructure, transportation, migration), ICT tools (the potential of telecentres for disaster preparedness and response) are emerging as an area of increasing interest.

What do you understand by Conservation Agriculture? Discuss the key principles of such a practice and elucidate upon its significance.(250 words)

FAO

Why this question:

The question is based on the topic of Conservation Agriculture and its importance.

Key demand of the question:

Discuss the concept of Conservation Agriculture in detail and highlight the prospects of such a concept.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

First define What Conservation Agriculture is? – Conservation Agriculture (CA) is a farming system that can prevent losses of arable land while regenerating degraded lands.

Body:

Discuss the aspects of Conservation agriculture.

It promotes maintenance of a permanent soil cover, minimum soil disturbance, and diversification of plant species. It enhances biodiversity and natural biological processes above and below the ground surface, which contribute to increased water and nutrient use efficiency and to improved and sustained crop production.

Explain the basic principles involved in it.

Discuss how CA facilitates good agronomy, such as timely operations, and improves overall land husbandry for rainfed and irrigated production. C

Conclusion:

Conclude with positive note and highlight that CA is a base for sustainable agricultural production intensification.

Introduction



Conservation Agriculture (CA) is defined as a sustainable agriculture production system comprising a set of farming practices adapted to the requirements of crops and local conditions of each region, whose farming and soil management techniques protect the soil from erosion and degradation, improve its quality and biodiversity, and contribute to the preservation of the natural resources, water and air, while optimizing yields.

Body

Agronomic practices included in CA are based on three core principles, which must be fulfilled concomitantly:

- Minimum soil disturbance.
- Maintenance of permanent soil covers.
- Cropping system diversity, crop rotations.

Key Principles of Conservation Agriculture

Conservation Agriculture is based on three main principles adapted to reflect local conditions and needs:

- **Minimum mechanical soil disturbance:** Minimum soil disturbance refers to low disturbance no-tillage and direct seeding. The disturbed area must be less than 15 cm wide or less than 25% of the cropped area (whichever is lower). There should be no periodic tillage that disturbs a greater area than the aforementioned limits. Strip tillage is allowed if the disturbed area is less than the set limits.
- **Permanent soil organic cover:** Three categories are distinguished: 30-60%, >60-90% and >90% ground cover, measured immediately after the direct seeding operation. Area with less than 30% cover is not considered as CA.
- **Species diversification:** Rotation/association should involve at least 3 different crops. However, repetitive wheat, maize, or rice cropping is not an exclusion factor for the purpose of this data collection, but rotation/association is recorded where practiced.

Significance

Conservation Agriculture prevents losses of arable land while regenerating degraded lands. It promotes maintenance of a permanent soil cover, minimum soil disturbance, and diversification of plant species. It is significant for following reasons:-

- **Enhanced biodiversity:** It enhances biodiversity and natural biological processes above and below the ground surface, which contribute to increased water and nutrient use efficiency and to improved and sustained crop production.
- **Carbon sequestration:** No till fields act as a sink for CO₂ and conservation farming applied on a global scale could provide a major contribution to control air pollution in general and global warming in particular. Farmers applying this practice could eventually be rewarded with carbon credits.
- **Labour savings:** Soil tillage is among all farming operations the single most energy consuming and thus, in mechanized agriculture, air-polluting, operation. By not tilling the



soil, farmers can save between 30 and 40% of time, labour and, in mechanized agriculture, fossil fuels as compared to conventional cropping.

- **Sustainable:** Complemented by other known good practices, including the use of quality seeds, and integrated pest, nutrient, weed and water management, etc., CA is a base for sustainable agricultural production intensification.
- **Mixed Farming possible:** It opens increased options for integration of production sectors, such as crop-livestock integration and the integration of trees and pastures into agricultural landscapes.
- **Increased yields:** Conservation agriculture is by no means a low output agriculture and allows yields comparable with modern intensive agriculture but in a sustainable way. Yields tend to increase over the years with yield variations decreasing.
- **Reduced costs:** For the farmer, conservation farming is mostly attractive because it allows a reduction of the production costs, reduction of time and labour, particularly at times of peak demand such as land preparation and planting and in mechanized systems it reduces the costs of investment and maintenance of machinery in the long term

Conclusion

Today, approximately one-third of the planet's soils are degraded. In many countries, intensive crop production has depleted soils, to the extent that future production in these areas is jeopardized. Healthy soils are key to developing sustainable crop production systems that are resilient to the effects of climate change. CA facilitates good agronomy, such as timely operations, and improves overall land husbandry for rainfed and irrigated production.

Issues related to direct and indirect farm subsidies and minimum support prices; Public Distribution System- objectives, functioning, limitations, revamping; issues of buffer stocks and food security; Technology missions; economics of animal-rearing.

Write a short note on National Mission on Sustainable Agriculture.(250 words)

[Vikaspedia](https://www.vikaspedia.com)

Why this question:

The question is direct from the static portions of GS paper III.

Key demand of the question:

Discuss in detail the NMSA project, highlight its key objectives, quote facts of achievements so far, challenges if any and conclude with way forward.

Structure of the answer:

Introduction:

National Mission for Sustainable Agriculture (NMSA) has been formulated for enhancing agricultural productivity especially in rain fed areas focusing on integrated farming, water use efficiency, soil health management and synergizing resource conservation.

Body:

Briefly discuss the mission objectives first.

Explain the mission strategy.

Discuss the major components of the scheme in detail.

Take hints from the reference and cover majority aspects in your answer.

**Conclusion:**

Conclude with significance of such missions to the agro-economics of the country.

Introduction:

National Mission on Sustainable Agriculture (NMSA) is one of the eight Missions under the **National Action Plan on Climate Change (NAPCC)** seeks to address issues regarding 'Sustainable Agriculture' in the context of risks associated with climate change by devising appropriate adaptation and mitigation strategies for ensuring food security, equitable access to food resources, enhancing livelihood opportunities and contributing to economic stability at the national level. It has been formulated for enhancing agricultural productivity especially in rainfed areas focusing on integrated farming, water use efficiency, soil health management and synergizing resource conservation.

Body:**Significance of National Mission for Sustainable Agriculture:**

- Sustaining agricultural productivity depends on quality and availability of natural resources like soil and water.
- Agricultural growth can be sustained by promoting conservation and sustainable use of these scarce natural resources through appropriate location specific measures.
- Indian agriculture remains predominantly rainfed covering about 60% of the country's net sown area and accounts for 40% of the total food production.

Objectives of National Mission for Sustainable Agriculture:

- To promote location specific Integrated/Composite Farming Systems that makes agriculture more productive, sustainable, and remunerative and climate resilient.
- To adopt appropriate soil and moisture conservation measures that will enhance the conservation of natural resources.
- To adopt comprehensive soil health management practices based on soil fertility maps, soil test based application of macro & micro nutrients, judicious use of fertilizers etc.
- There should be optimisation of utilization of water resources through efficient water management to expand coverage for achieving 'more crops per drop'.
- To develop capacity of farmers & stakeholders, in conjunction with other on-going Missions e.g. National Mission on Agriculture Extension & Technology, National Food Security Mission, National Initiative for Climate Resilient Agriculture (NICRA) etc., in the domain of climate change adaptation and mitigation measures.
- There should be selection of block by the pilot model for improving productivity of rain-fed farming by mainstreaming rain-fed technologies refined through NICRA and by leveraging resources from other schemes/Missions like Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Integrated Watershed Management Programme (IWMP), and RKVY etc.
- There should be establishment of an effective inter and intra Departmental/Ministerial co-ordination for accomplishing the goal of National Mission for Sustainable Agriculture under the aegis of NAPCC.

Important components:

- Rainfed Area Development (RAD)
- Sub-Mission on Agroforestry (SMAF)
- National Bamboo Mission (NBM)



- Soil Health Management (SHM)
- Climate Change and Sustainable Agriculture: Monitoring, Modelling and Networking (CCSAMMN)
- Paramparagat Krishi Vikas Yojana (PKVY)

Challenges:

- Proposed provision and strategies are highly extensive which is only targeting the big farmers and rest are remaining vulnerable.
- Sustainable Agriculture is based on an understanding of ecosystem services, the study of relationships between organisms and their environment.
- But the proposed strategies of the mission given importance of water and largely ignored the usage of chemical fertilizers. The use of chemical fertilizer required more irrigation as compare to the organic farming.
- The mission is lacked by the adequate framework to meet the climate change especially challenges faced by agriculture due to the climate change.

Conclusion:

Conservation of natural resources in conjunction with development of rainfed agriculture holds the key to meet burgeoning demands for food grain in the country. Towards this end, National Mission for Sustainable Agriculture (NMSA) has been formulated for enhancing agricultural productivity especially in rainfed areas focusing on integrated farming, water use efficiency, soil health management and synergizing resource conservation.

With suitable Illustrations, explain how Livestock farming backed by Agricultural Extension services can help weaker sections of society.(250 words)

FAQ

Why this question:

Question is based on the topic of economics of animal-rearing.

Key demand of the question:

Discuss in detail the benefits of Livestock farming backed by Agricultural Extension services. And the positive impact it brings in development of weaker sections of the society.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Dis

Body:

Explain that Livestock make a major, although largely underestimated, contribution to rural development in developing countries. They produce food, enhance crop production and provide additional economic goods and services as well as cash income.

The inclusion of livestock diversifies and increases total farm production and income, provides year-round employment and disperses risk. Sales of livestock products provide funds for purchasing crop inputs and for financing farm investments

Livestock often form the major capital reserve of farming households and, in general, enhance the economic viability and sustainability of a farming system.

Explain how linking it with agri extension services can help weaker sections of the society.



Discuss the stakeholders that will benefit from such a combination of services; Women, Rural areas etc.

Conclusion:

Conclude with way forward.

Introduction:

India's livestock sector is one of the largest in the world. About 20.5 million people depend upon livestock for their livelihood. Livestock contributed 16% to the income of small farm households as against an average of 14% for all rural households. Livestock provides livelihood to two-third of rural community. It also provides employment to about 8.8 % of the population in India. India has vast livestock resources. Livestock sector contributes 4.11% GDP and 25.6% of total Agriculture GDP.

India's withdrawal from the Regional Comprehensive Economic Partnership (RCEP) is considered as a major victory for the farmer's organisations, trade unions, MSME organisations and civil society groups, which had protested against the free trade agreement. RCEP would have proven suicidal for India's dairy sector.

Body:

Trends in livestock population: (Source: 20th Livestock Census)

- Total Livestock population is 535.78 million- an increase of 4.6% over Livestock Census-2012.
- Total Bovine population (Cattle, Buffalo, Mithun and Yak)-79 Million in 2019- an increase of about 1% over the previous census.
- A decline of 6 % in the total Indigenous/ Non-descript cattle population over the previous census.
- The population of cows in the country has risen by 18 per cent in the last seven years, while that of oxen dipped by 30 per cent, according to the latest census of livestock.
- there was a spectacular 16.8 per cent increase in the poultry population in the country to 851.81 million, mainly on account of a 46 per cent rise in backyard poultry birds, whose numbers have gone up to 317 million.
- The number of female cattle is 145.12 million, which is 18 per cent over the 122.98 million in 2012. The number of male cattle, on the other hand, dropped to 47.4 million as against 67.92 million in 2012.
- While cattle accounted for 35.94 per cent of total livestock in the country, goats accounted for 27.80 per cent, buffaloes: 20.45 per cent, sheep: 13.87 per cent and pigs: 1.69 per cent.

Role of livestock in socio-economic life of India:

The livestock plays an important role in the economy of farmers. The farmers in India maintain mixed farming system i.e. a combination of crop and livestock where the output of one enterprise becomes the input of another enterprise thereby realize the resource efficiency. The livestock serve the farmers in different ways.

▪ **Income:**

- Livestock is a source of subsidiary income for many families in India especially the resource poor who maintain few heads of animals.
- Cows and buffaloes if in milk will provide regular income to the livestock farmers through sale of milk.



- Animals like sheep and goat serve as sources of income during emergencies to meet exigencies like marriages, treatment of sick persons, children education, repair of houses etc.
- The animals also serve as moving banks and assets which provide economic security to the owners.
- **Employment:**
 - A large number of people in India being less literate and unskilled depend upon agriculture for their livelihoods.
 - But agriculture being seasonal in nature could provide employment for a maximum of 180 days in a year.
 - The land less and less land people depend upon livestock for utilizing their labour during lean agricultural season.
- **Food:**
 - The livestock products such as milk, meat and eggs are an important source of animal protein to the members of the livestock owners.
 - The per capita availability of milk is around 355 g / day; eggs is 69 / annum;
- **Social security:**
 - The animals offer social security to the owners in terms of their status in the society.
 - The families especially the landless which own animals are better placed than those who do not.
 - Gifting of animals during marriages is a very common phenomenon in different parts of the country.
 - Rearing of animals is a part of the Indian culture. Animals are used for various socio religious functions.
 - Cows for house warming ceremonies; rams, bucks and chicken for sacrifice during festive seasons;
 - Bulls and Cows are worshipped during various religious functions. Many owners develop attachment to their animals.
- **Gender equity:**
 - Animal husbandry promotes gender equity.
 - More than three-fourth of the labour demand in livestock production is met by women.
 - The share of women employment in livestock sector is around 90% in Punjab and Haryana where dairying is a prominent activity and animals are stall-fed.
- **Draft:**
 - The bullocks are the back bone of Indian agriculture.



- The farmers especially the marginal and small depend upon bullocks for ploughing, carting and transport of both inputs and outputs.
- **Dung:**
 - In rural areas dung is used for several purposes which include fuel (dung cakes), fertilizer (farm yard manure), and plastering material (poor man's cement).

Conclusion:

With increasing population, persistent rise in food inflation, unfortunate rise in farmer's suicide and majority of the Indian population having agriculture as the primary occupation, the practice of animal husbandry is no more a choice, but a need in contemporary scenario. Its successful, sustainable and skilful implementation will go a long way in ameliorating the socio-economic condition of lower strata of our society. Linking the animal husbandry with food processing industry, agriculture, researches & patents has all the possible potential to make India a nutritional power house of the world. Animal husbandry is the imperative hope, definite desire and urgent panacea for India as well as the world.

What is Pradhan Mantri LaghuVyapariMaan-dhan Yojana? Discuss the Significance of the scheme and its role in ensuring financial security of the citizens. (250 words)

Vikaspedia

Why this question:

The National Pension Scheme for Traders and Self-Employed Persons has failed to gain traction as only about 25,000 persons have opted for the scheme as against the government's target to enroll 50 lakh by March-end. Thus the question.

Key demand of the question:

Discuss the key features, Significance of the scheme and its role in ensuring financial security of the citizens.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Start by bringing out the relevance of the scheme to the agricultural setup of the country.

Body:

Explain What is Pradhan Mantri LaghuVyapariMaan-dhan Yojana? It is a voluntary and contribution based central sector scheme. The government launched the scheme, entailing monthly minimum assured pension of ₹3,000 for the entry age group of 18-40 years after attaining the age of 60 years, with effect from July 22, 2019.

Explain in detail the significance, beneficiaries it caters to.

Conclusion:

Conclude with way forward.

Introduction:

The National Pension Scheme for Traders and Self Employed Persons Yojana (Pradhan Mantri Laghu Vyapari Maan-dhan Yojana) is a pension scheme for shopkeeper's/ retail traders and self-employed persons for providing monthly minimum assured pension of Rs 3000/- for the entry age group of 18-40 years. The scheme is an **extension of the PM Shram Yogi Maan-dhan Yojana**. It



is a **voluntary** and **contribution based central sector scheme**. Under the scheme, the government makes matching contribution in the subscribers' account. The scheme is based on self-declaration as no documents are required except bank account and Aadhaar Card.

Body:

Significance of the Pradhan Mantri Laghu Vyapari Maan-Dhan Yojana (PMLVM):

- All shopkeeper, retail traders and the self-employed individual will receive a monthly pension of Rs.3000 after attaining the age of 60 years.
- Under the PMLVM scheme, the eligible beneficiary will have to make a monthly contribution of Rs.55 to Rs.200 depending upon their age limit.
- The Central/State Government will make an equal contribution to the beneficiary account. For example, if a person with the age of 30 years will have to contribute Rs.105 per month, then the Government also contributes the same amount as subsidy into the beneficiary account.
- The Life Insurance Corporation of India, which acts as the pension fund manager, is responsible for the disbursement of pension amount.
- In case of permanent disability of beneficiary before superannuation age, the spouse can continue in the scheme by remitting the balance amount until you reach the loan tenure. If there is no spouse, then the total contribution along with interest will be paid to the beneficiary.
- In case of death occurs after the retirement date, the spouse will receive 50% of the pension as the family pension. After the loss of both the pensioner and the spouse, then the fund will be credited back to the nodal agency.

Role in ensuring financial security:

- Each eligible subscriber under this Scheme shall receive assured minimum monthly pension of Rs 3000 after attaining the age of sixty years.
- The Government of India will make matching contribution in the subscribers' account. For example, if a person with age of 29 years contributes Rs. 100/- month, then the Central Government also contributes the equal amount as subsidy into subscriber's pension account every month.
- **Benefits on disablement:** If an eligible subscriber has given regular contributions and become permanently disabled due to any cause before attaining his age of 60 years, and is unable to continue to contribute under this Scheme, his spouse shall be entitled to continue with the Scheme subsequently by payment of regular contribution as applicable or exit the Scheme by receiving the share of contribution deposited by such subscriber, with interest as actually earned thereon by the Pension Fund or the interest at the savings bank interest rate thereon, whichever is higher.
- **Benefits to the family on death of an eligible subscriber:** During the receipt of pension, if an eligible subscriber dies, his spouse shall be only entitled to receive fifty per cent. of the pension received by such eligible subscriber, as family pension and such family pension shall be applicable only to the spouse.

Conclusion:

In India, as of now, we do not have any Social Security System. So, this scheme can benefit, especially the low income group and individuals who are retail traders and shop keepers.



Do you agree that it is the bounden duty of scientific community to find long-term solutions to the problems faced by farmers and improve crop productivity? Comment and discuss the significance of research and technology to Agriculture. (250 words)

Business-Standard

New Indian Express

Why this question:

The Vice President of India, M Venkaiah Naidu called upon the scientific community to find long-term solutions to the problems faced by farmers and improve crop productivity and farmers' income. Thus the context of the question.

Key demand of the question:

Explain how relevant it is to involve scientific community and research in developing long-term solutions to the problems faced by farmers and improve crop productivity.

Directive:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

In general discuss the importance of research and science in developing newer methods and discovering newer ways to address the challenges of Agriculture in the country.

Body:

Emphasis upon the critical role of technology in enhancing both the quality and quantity across the agriculture value chain from the use of inputs at the pre-production stage to post-production and marketing to improve the income of farmers.

Explain that It is the bounden duty of scientific community to find long-term solutions to the problems faced by farmers and improve crop productivity. Scientists need to explore ways to make crops more "climate-resilient, nutrition-efficient and less water consuming". The role of technology is critical in enhancing

Both the quality and quantity across the agriculture value chain from the use of inputs at the pre-production stage to post-production and marketing to improve the income of farmers.

Conclusion:

Conclude that Science is significant in finding solutions and Technological innovation was a key driver in boosting economy, improving people's lives and Enabling better delivery of services.

Introduction:

Agriculture has always been a lifeline for India. Even though with age, India has made a mark in various spheres and has progressed in the manufacturing sector by leaps and bounds, but agriculture still remains one of the key drivers of the economy. Worldwide, India ranks second in farm output and accounts for about 50% of the country's workforce.

Body:

Need for scientific community to find long-term solutions:

- The **lack of remunerative prices** for the crops is one of the main reasons for Agrarian distress in India today.
- The various options like **Minimum Support Price** for about 25 crops, **Farm Loan Waiver** schemes undertaken by various state governments have failed to alleviate the problem.
- The NSSO Situation Assessment Survey of Agricultural Households (2013) shows that 52% of farming households are indebted, with rates as high as 89-92% in some States.



- Climate change affects all the three aspects of food security: availability, access and absorption.
- Agricultural productivity is sensitive to climate-induced effects like changes in temperature, precipitation and carbon dioxide concentrations in the atmosphere
- According to 2018 Economic Survey, India incurs losses of about \$9-10 billion annually due to extreme weather events.
- It also noted farmers' income losses from climate change would be between 15 % and 18 % on an average.

Science and Technology has helped in Agriculture:

- Modern agricultural technology allows a small number of people to grow vast quantities of food and fiber in a shortest period of time.
- Modern transportation technology facilities help farmers easily transport fertilizers or other farm products to their farms, and it also speeds the supply of agricultural products from farms to the markets where consumers get them on a daily basis.
- Cooling facilities help farmers to deliver perishable crops to keep them fresh as they transport them to the market. These cooling facilities are installed in food transportation trucks, so crops like tomatoes will stay fresh upon delivery.
- Genetically produced plants like potatoes, can resist diseases and pests, which rewards the farmer with good yields and saves them time. These crops grow very fast they produce healthy yields.
- Advanced water sprinklers are being used to irrigate big farms and this helps the crops get enough water which is essential in their growth.
- Most of these genetically produced animals will produce more milk or fur compared to normal animals. This benefits the farmer because their production will be high.

Technology has played a big role in developing the agricultural industry. Today it is possible to grow crops in a desert by use of agricultural biotechnology. With this technology, plants have been engineered to survive in drought conditions. Through genetic engineering scientists have managed to introduce traits into existing genes with a goal of making crops resistant to droughts and pests. However, after nearly four decades into the post green revolution period, the country still grapples with crisis each year in trying to meet the increasing demand for food by its people. **Structural reforms needed** are:

- **Credit, finance and Insurance:**
 - Raising the MSP, price deficiency payments or income support schemes can only be a partial solution to the problem of providing remunerative returns to farmers.
 - A **functional institutional credit system** which is accessible and accountable to all cultivators.
 - This covers not only land-owning farmers but also sharecroppers, tenants, adivasi and women farmers, and animal-rearers.
 - Credit products for agriculture need to be tailor-made based on cropping and rain cycle, specific to a particular region. The regional offices of commercial banks should contribute in this exercise. Registration of all cultivators and providing Kisan credit cards.
 - The period of crop loan should be extendable to four years, given that, on average, every second or third year the spatial distribution of rain pattern is erratic in India.



- **Land holdings:**
 - The average size of farm holdings **declined from 2.3 hectares in 1970-71 to 1.08 hectares in 2015-16.**
 - Policies for land consolidation along with land development activities in order to tackle the challenge of the low average size of holdings.
 - Farmers can **voluntarily come together** and pool land to gain the benefits of size. Through consolidation, farmers can reap the economies of scale both in input procurement and output marketing.
- **Input Costs:**
 - It is more important to make agriculture sustainable by reducing input costs of seeds, fertilizers and other inputs.
 - Investment in infrastructure and research and development are needed.
 - There is a need for collaboration of **industry-academia** for coming out with cost-effective solutions to agrarian distress.
 - There is a need to make a shift from rice and wheat-centric policies to millets, pulses, fruits, vegetables, livestock and fish.
- **Remunerative Prices:**
 - Extending reach of minimum support price which has been dedicated to few crops and in a narrow geographical area is important.
 - Set up of Futures and Trade markets, tie up of farmer and private companies for procurement should be looked into as alternative methods against distress sale.
- **Agro- Produce Marketing and Processing:**
 - The creation of a **competitive, stable and unified national market** is needed for farmers to get better prices.
 - For better price for farmers, agriculture has to go beyond farming and **develop a value chain comprising farming, wholesaling, warehousing, logistics, processing and retailing.**
 - The agro-processing industry and warehousing needs to expand so that agricultural produce can be stored when prices plunge.
 - Promoting viable farmer collectives to act as a “collective voice of marginal and small farmers”.
 - Legislations on the basis of NITI Aayog’s new model law — **Agricultural Produce and Livestock Marketing (Promotion and Facilitating) Act (APLM)** should be enacted in all states.
 - A sustainable solution is market reforms to enable better price discovery combined with long-term trade policies favourable to exports.
- **Technology:**



- Use water-use efficient technologies that can improve significantly the produce like drip irrigation and sprinkler irrigation.
- Precision agriculture, GM Crops should be encouraged drought prone areas.
- Space technology and Mobiles should act as “Eyes and Ears” of the farmers to assist in farming.
- **Distress Management:**
 - Establish farmers’ distress and disaster relief commissions at the national and State levels, based on the model of Kerala Farmers’ Debt Relief Commission.

Conclusion:

Although Science and Technology did help improve the situation of Agriculture but the farmer income dropped consistently due to a variety of reasons. There is a need for implementation of the structural reforms and recommendations of various commissions to realise the **goal of doubling of farmer’s income by 2022.**

What do you understand by Integrated Farming System? How far is the Integrated Farming System helpful in sustaining agricultural production? Elucidate in the Indian context. (250 words)

[Agritech](#)

Why this question:

The question is straightforward and is based on the concept of Integrated Farming System and its relevance to India agriculture system.

Key demand of the question:

Discuss in detail the concept of IFS, discuss its relevance and significance to the Indian Setup.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Briefly explain what Integrated Farming System is.

Body:

Discuss Role of Integrated Farming System and in what way it is helpful in sustaining agricultural production.

The Integrated Farming System (IFS) is a combined approach aimed at efficient sustainable resource management for increased productivity in the cropping system. The IFS approach has multiple objectives of sustainability, food security, farmer’s security and poverty reduction by involving livestock, vermicomposting, organic farming etc.

Discuss the possible challenges involved.

Conclusion:

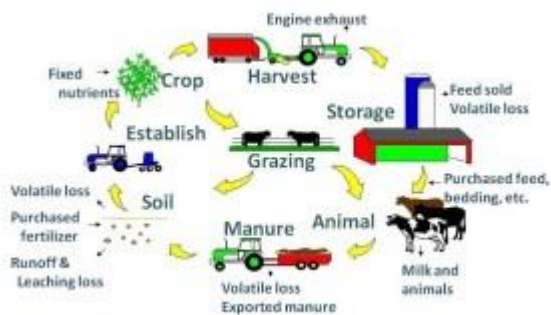
Conclude with way forward such as Integrating subsistence agriculture, Encouraging livestock enterprises, Building farmer capacities etc.

Introduction:

Integrated farming system (IFS) refers to agricultural system that integrates livestock and crop production to deliver more sustainable agriculture. IFS utilizes the crop- livestock interaction as shown below in the cyclic diagram, according to Economic Survey 2018-19.



Body:



IFS and sustaining agricultural production:

- Higher food production to equate the demand of the exploding population of our nation
- Increased farm income through proper residue recycling and allied components
- Sustainable soil fertility and productivity through organic waste recycling
- Integration of allied activities will result in the availability of nutritious food enriched with protein, carbohydrate, fat, minerals and vitamins
- Integrated farming will help in environmental protection through effective recycling of waste from animal activities like piggery, poultry and pigeon rearing
- Reduced production cost of components through input recycling from the byproducts of allied enterprises
- IFS components are known to control the weed and regarded as an important element of integrated pest management and thus minimise the use of weed killers as well as pesticides and thereby protect the environment.
- Regular stable income through the products like egg, milk, mushroom, vegetables, honey and silkworm cocoons from the linked activities in integrated farming
- Inclusion of biogas & agro forestry in integrated farming system will solve the prognosticated energy crisis
- Cultivation of fodder crops as intercropping and as border cropping will result in the availability of adequate nutritious fodder for animal components like milch cow, goat / sheep, pig and rabbit
- Firewood and construction wood requirements could be met from the agroforestry system without affecting the natural forest
- Avoidance of soil loss through erosion by agro-forestry and proper cultivation of each part of land by integrated farming
- Generation of regular employment for the farm family members of small and marginal farmers.
- IFS promote the efficient management of resources. This enhances the productivity of the farming.
- The IFS promotes for rejuvenation of systems productivity and to achieve agroecological equilibrium.

IFS in Indian perspective:

- Some IFS features like Organic farming, and developing a judicious mix of income-generating activities such as dairy, poultry, fishery, goat-rearing, vermicomposting and others, and community-led local systems for water conservation etc help in reducing farmers' distress.
- Integrated Farming Systems suitable particularly for hilly regions of the North Eastern Region can be adopted.



- Some are as – Integrated Fish cum Pig farming, Integrated Fish cum Duck Farming, Integrated Fish Farming-Chicken, Integrated Fish farming-cum-Cattle farming, Integrated Fish farming-cum-Rabbit farming, Integrated Fish farming-cum-Agriculture.
- Sikkim being an organic state is a good example.

Case studies:

1. **Integrated Fish Cum Pig farming in North east-** Pig sites are constructed on pond embankment. Pig manure (feaces and urine) are directly drained into the pond which acts as pond fertilizer and increases the biological productivity of [pond water, thus increasing the fish production. Also, fish feed directly on pig excreta, which cuts down the cost of feed as well. This system has helped to improve the status of weaker rural communities, especially tribals in North eastern states.
2. **Integrated fish farming cum Horticulture** – Embankments of fish ponds provide area for planting fruits and vegetable. When Banana and Coconut is cultivated in rows in wetlands, the ditches made between such rows act as supply canal. These canals serve as fish culture system due to regular supply of water and rich insect populations. In turn it naturally boosts the productivity of soil and yield of fruits and vegetables.

Conclusion:

Keeping in mind the benefits of crop- livestock interaction, Economic Survey (2018-19) has suggested to improve Resource Efficiency for Small holder agriculture (as 85 % of agriculture is dominated by small and marginal farmers), where organic farming (ZBNF, Cow Farming, Vedic Farming, Homa farming) and increasing water productivity should be given a thrust. Economic survey (2018-19) has also suggested to capitalise Small ruminants (Sheep and Goats), especially in water stressed regions for additional source income for farmers.

Briefly discuss the objectives of Agricultural and Processed Food Products Export Development Authority (APEDA). Discuss in detail the functions performed by it and analyse its contributions to the Indian agriculture. (250 words)

[Apeda](#)

Why this question:

The question is based on the roles and responsibilities delivered by Agricultural and Processed Food Products Export Development Authority (APEDA).

Key demand of the question:

Discuss in detail the objectives, functions, roles played by Agricultural and Processed Food Products Export Development Authority (APEDA).

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

The Agricultural and Processed Food Products Export Development Authority (APEDA) was established by the Government of India under the Agricultural and Processed Food Products Export Development Authority Act, 1985. It functions under the Ministry of Commerce and Industry. The Authority has its headquarters in New Delhi.

Body:

Discuss the key functions performed by APEDA.



APEDA is mandated with the responsibility of export promotion and development of the scheduled products viz. fruits, vegetables and their products; meat and meat products; poultry and poultry products; dairy products; confectionery, biscuits and bakery products etc.

Explain the composition of APEDA, how it works.

Discuss the work done so far by the authority.

Conclusion:

Conclude with significance.

Introduction:

The **Agricultural and Processed Food Products Export Development Authority (APEDA)** was established by the Government of India under the **Agricultural and Processed Food Products Export Development Authority Act** passed by the Parliament in December, 1985. It is established under the **Ministry of Commerce and Industry**, Government of India is mandated with the responsibility of export promotion and development of the following scheduled products.

Body:

Exports of India:

- India witnessed a jump of nearly 50 per cent in organic product exports touching the Rs 5151 crore-mark (\$757 million) in 2018-19.
- India exported organic products worth Rs 5151 Crore (over US \$ 757 million) in 2018-19, from Rs 3453 Crore in 2017-18 (US\$ 515 million) registering an increase of about 49 %.
- According to estimates by APEDA, flax seeds, sesame, soybean, tea, medicinal plants, rice and pulses such as arhar and chana are the key organic food products that drove this growth.
- The total volume of export during 2018-19 was 6.14 lakh tonnes

Objectives of APEDA:

- The objective of APEDA is to promote schedule products export and to achieve this various functions has been undertaken by this body under the regulation of central government.
- Central government lays down the rules and regulation and implements through this body for the efficient administration of APEDA Act.

Functions of APEDA:

- Development of industries relating to the scheduled products for export by way of providing financial assistance or otherwise for undertaking surveys and feasibility studies, participation in enquiry capital through joint ventures and other reliefs and subsidy schemes;
- Registration of persons as exporters of the scheduled products on payment of such fees as may be prescribed;
- Fixing of standards and specifications for the scheduled products for the purpose of exports;
- Carrying out inspection of meat and meat products in slaughter houses, processing plants, storage premises, conveyances or other places where such products are kept or handled for the purpose of ensuring the quality of such products;
- Improving of packaging of the Scheduled products;
- Improving of marketing of the Scheduled products outside India;
- Promotion of export oriented production and development of the Scheduled products;
- Collection of statistics from the owners of factories or establishments engaged in the production, processing, packaging, marketing or export of the scheduled products or from such



other persons as may be prescribed on any matter relating to the scheduled products and publication of the statistics so collected or of any portions thereof or extracts therefrom;

- Training in various aspects of the industries connected with the scheduled products;
- Such other matters as may be prescribed.

Conclusion:

APEDA has been promoting the export of various agricultural commodities and provides a platform to showcase India's quality produce to the global market. Ministry of Food Processing Industries and other agencies are working in close coordination; they are also focusing on exports. In addition, involving states since they also have an important role in encouraging exports of agriculture products from the region.

Discuss the economics of poultry industry in India .(250 words)

Indian Express

Why this question:

The question is straightforward and aims to discuss the economics of Poultry in India.

Key demand of the question:

Discuss in detail the economics of poultry industry in India.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Describe key facts of present poultry industry in India.

Body:

Discuss the importance of poultry farming.

Explain in what way it can augment the income of farmer.

Comment on the aspects of allied agriculture and the importance of poultry

Discuss the challenges associated and how to overcome it.

Explain what the policies of the govt. in this direction are.

Conclusion:

Conclude with significance.

Introduction:

India has the world's largest population of livestock. The country produces approximately **5.3 million MT of meat and 75 billion eggs annually**. India is also the largest producer of buffalo meat and second largest producer of goat meat. In essence, poultry and meat are vertically integrated industries in India and have witnessed colossal growth over the past few years.

Body:

The poultry industry in India, in particular, represents a massive success story. It has undergone a paradigm shift in structure and operation and what was largely a backyard venture before the 1960s has been transformed into a vibrant agribusiness with an annual turnover of INR 30 000 crores. Presently, India is the third largest egg producer in the world following China and the USA.

Potential of the poultry sector:

- The development goes beyond size – extending to efficiency, superiority and quality.



- **Labour:** Poultry sector, besides providing direct or indirect employment to nearly 3 million people is a potent tool for subsidiary income generation for many landless and marginal farmers.
- **Nutritional security:** For a distressed farmer's family, food provided by livestock is the only source of nutrition required for survival and also provides nutritional security.
- **Reliable source of income:** Further, landless labourers derive more than 50 per cent of their income from livestock especially from poultry.
- **Asset:** Livestock are important asset for a distress farmer which can be encashed at any moment and may help him to come out of debt trap.

Undoubtedly, this remarkable growth is an outcome of several factors, such as active developmental support from the state and central government, research and development support from research institutes, application of new technologies, international collaboration and private sector participation.

Way forward:

- Measures should be taken to increase the meat production efficiency of different species of animals using the improved management practices.
- Adoption of improved shelter management practices can reduce the environmental stress.
- New breeds should be developed for meat production with higher feed conversion efficiency, faster growth and disease resistant.
- Health management practices should be followed for prevention of diseases and economic loss to the farmers.
- Regular prophetic health measures should be carried out against infectious diseases. Regular screening of animals should be carried out against disease such as tuberculosis, brucellosis, salmonellosis etc.
- The livestock market yard should have basic facilities for feeding, watering and holding animals for days.
- By vertical integration with meat processing industries the middle men can be eliminated, which will ultimately increase the profit of farmers.
- There is need for modernizing the quality control laboratories of the State Government, apart from need for strict laboratory inspection of meat and meat products, training programs for meat workers regarding hygiene and sanitation need to be organized regularly.
- Modernization of abattoirs, setting up of rural abattoirs and registration of all slaughter houses in cities/towns are essential for quality meat production.
- The setting up of large commercial meat farms have been recommended to address the traceability issues necessary for stringent quality standards of CODEX.

Conclusion:

Poultry rearing has always been an integral component of livestock production system in India. The concept of composite farming production system with crop, livestock, fish and poultry production has been practiced for centuries in India. However, poultry production in India has taken a quantum leap in the last four decades, emerging from an entirely unorganized and unscientific farming practice to commercial production system with state-of-the-art technological interventions

Case study:



Records show that meat production was 4.69 lakh metric ton in 2017-18. Kerala is the 8th largest meat-producing state in the country, contributing 6.1 per cent of the meat produced in India. Out of the total, 38.8 per cent is poultry meat, 33.95 per cent from cattle and 20.99 per cent from buffalo.

Despite having a robust non-vegetarian food market, the processed meat market is negligible in Kerala. BDS, started in 1999 for implementing a dairy project in Wayanad, ventured into meat processing in 2013 and poultry in December 2018, thus opening new avenues for farmers.

Private agencies give only Rs 4 to Rs 6 as rearing charge for per kg of a live bird, which becomes ripe for the market in 45 days. But, BDS, which owns breeder farm and hatchery in Tamil Nadu, gives Rs 8 to Rs 11 as rearing charge as there is no middleman.

Food processing and related industries in India- scope and significance, location, upstream and downstream requirements, supply chain management.

Why are food processing industries significant? Discuss the Scope and Significance of Food Processing Industries in India. (250 words)

Comprehensive Indian Geography by Khullar

Why this question:

The question is directly from the static portions of the GS paper III.

Key demand of the question:

Discuss the significance of food processing industries, scope and its utility in the country.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly define food processing industries.

Body:

Discuss that Major industries constituting the Food processing industry are grains, sugar, edible oils, beverages and dairy products. The key sub-segments of the Food Processing industry in India are: Dairy, Fruits & Vegetables, Poultry & Meat processing, Fisheries, Food retail etc.

Suggest facts that bring out the significance of the industry.

Explain the significance and scope of it.

Conclusion:

Conclude with future avenues and opportunities that the Industry has for the Indian economy.

Introduction

Food processing generally includes the basic preparation of foods, the alteration of a food product (usually raw) into another form (as in making preserves from fruit), and preservation and packaging techniques. Food processing typically takes harvested crops or animal products and uses these to produce long shelf-life food products.

It includes the **process of value addition** to produce products through methods such as preservation, addition of food additives, drying etc. with a view to preserve food substances in an effective manner, enhance their shelf life and quality.

Body

- **Why are food processing industries significant?**



The **Food Processing Industry (FPI)** is of enormous significance as it provides vital linkages and synergies that it promotes between the two pillars of the economy, i.e. agriculture and industry.

- **Employment Opportunities:** Food processing industries can absorb a major share of workers from the agriculture sector, who face disguised unemployment. It can lead to better productivity and GDP growth.
- **Prevents Wastage:** Nearly one-third of the food that is produced each year goes uneaten, costing the global economy **over \$940 billion** as per report by **World Resources Institute (WRI)**
 - India is biggest producer of numerous fruits and vegetable. Most of these are perishable and have very low shelf life. This is the major reason for high percentage of wastage. Their shelf life can be increased through food processing.
- **Value Addition:** Products such as tomato sauce, roasted nuts, de-hydrated fruits are in high demand.
- **Reduce malnutrition:** Processed foods when fortified with vitamins and minerals can reduce the nutritional gap in the population.
- **Boosts Trade and Earns Foreign exchange:** It is an important source of foreign exchange. For e.g. Indian Basmati rice is in great demand in Middle Eastern countries.
- **Make in India:** Food processing is one of the six superstar sectors under the GoI's, Make in India initiative and has the potential to transform India as a leading food processing destination of the World.
- **Curbing Food Inflation:** Processing increases the shelf life of the food thus keeping supplies in tune with the demand thereby controlling food-inflation.
 - **For e.g.** Frozen peas/ corn are available throughout the year.
 - Similarly canned onions under Operation Greens can achieve price stability.
- **Doubling of farmers' income:** With contract farming, farmers can get better technological inputs from industries as well. There is income security and proportionate value for produce. They are also protected against price shocks.
- **Crop-diversification:** Food processing will require different types of inputs thus creating an incentive for the farmer to grow and diversify crops.

Scope and Significance in India

- **Scope of FPI**
 - India is the world's second largest producer of fruits & vegetables after China but hardly 2% of the produce is processed.
 - India is among the top 5 countries in the production of coffee, tobacco, spices, seeds etc. With such a huge raw material base, we can easily become the leading supplier of food items in the world.
 - In spite of a large production base, the level of processing is low (less than 10%). Approximately 2% of fruits and vegetables, 8% marine, 35% milk, 6% poultry are processed. Lack of adequate processable varieties continues to pose a significant challenge to this sector.
 - **Economic Survey 2020:** During the last 6 years ending 2017-18, Food Processing Industries sector has been growing at an average annual growth rate of around 5.06 per cent.



- **Employment:** According to the **Annual Survey of Industries** for 2016-17, the total number of persons engaged in registered food processing sector was **18.54 lakhs**. (whereas unregistered FPOs supports **51.11 lakh** workers)
- **Farmer Beneficiaries:** The SAMPADA scheme is estimated to benefit about **46.37 lakh** farmers and generate about **5.6 lakh direct/ indirect employment** (ES 2020 data).
- **Curbing Distress Migration :** Provides employment in rural areas, hence reduces migration from rural to urban. Resolves issues of urbanization.
- **Government Initiatives**
 - The Ministry of Food Processing Industries (MoFPI) is implementing **PMKSY (Pradhan Mantri Kisan SAMPADA Yojana)**. The objective of PMKSY is to supplement agriculture, modernize processing and decrease agri-waste.
 - Mega Food Parks.
 - Integrated Cold Chain, Value Addition and Preservation Infrastructure.
 - Creation/Expansion of Food Processing/Preservation Capacities.
 - Infrastructure for Agro Processing Clusters.
 - Scheme for Creation of Backward and Forward Linkages.
 - **Foreign Direct Investment (FDI) policy:** FDI up to 100%, under the automatic route is allowed in food processing industries.
 - **Agri Export Zones:** To give thrust to export of agro products, new concept of Agri Export Zones was brought in 2001. **APEDA** has been nominated as the Nodal Agency to coordinate the efforts
 - cluster approach of identifying the potential products;

the geographical region in which these products are grown;

- Adopting an end-to-end approach of **integrating the entire process** right from the stage of production till it reaches the market (farm to market).

Conclusion

Food processing has a promising future, provided adequate government support is there. Food is the biggest expense for an urban Indian household. About 35 % of the total consumption expenditure of households is generally spent on food. As mentioned, food processing has numerous advantages which are specific to Indian context. It has the capacity to lift millions out of undernutrition. Government has it's work cut out to develop industry in a way which takes care of small scale industry along with attracting big ticket domestic and foreign investments.

The agri value chain in India seems to be stuck in the cycle of low returns and low investment. Discuss the causative factors and analyse what needs to be done.(250 words)

[Science Direct](#)

Why this question:

The question is based on the problems that are being recurrently witnessed in the agricultural supply chain management in the country.

Key demand of the question:

Discuss in detail the issues concerning the Agri value chain and reasons for low returns of it and Suggest solutions to overcome such challenges.

Directive:



Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain What is supply chain management in agriculture?

Body:

Discuss that in Agribusiness, supply chain management (SCM) implies managing the relationships between the businesses responsible for the efficient production and supply of products from the farm level to the consumers to meet consumers' requirements reliably in terms of quantity, quality and price

Explain what the issue with low returns and low investments is.

Discuss what needs to be done? Provide for cases where government has made efforts in this direction.

Conclusion:

Conclude with suitable solutions to plug in the loopholes in the system of agri value chain.

Introduction

The conceptual framework of agricultural value chains includes a sequence of value adding activities, from production to consumption, through processing and marketing. Each segment of a chain has one or more backward and forward linkages. A value chain in agriculture identifies the set of actors and activities that bring a basic agricultural product from production in the field to final consumption, where at each stage value is added to the product.

In South Asian countries, such as India, agricultural value chains are often fragmented; lack investment; and fail to include vulnerable groups and are missing critical linkages of farms and markets.

Body

- **Causative Factors for glut in Agri-Value Chain**

In India, agriculture system along with value chain framework has not been conceived as a main strategy to bring more efficiency, productivity and earnings. There has not been enough emphasis on the growth and development of efficient agricultural value chains in India.

- **Access to finance** : Most of the Indian agricultural value chain firm"s focusses on local market and they need more resources and capacity to compete in the external markets.
 - Credit for pre and post-harvest inputs, guarantee and risk for final output have not been made part of overall agriculture and export policies in India.
 - For example, many incentives are given to IT companies and new start-ups, such facilities are not extended to agricultural products exporting firms also.
 - Thus it is preventing forward integration of farmers.
- **Market Access**: The existence of middlemen and agents, absence of data and information about other links in the chain and inability to invest in improving the performance in almost every part of the chain led to inefficiencies.
 - Agricultural value chains are difficult to stabilise in India with a large number of small and marginal farmers.



- The production, collection, storage and delivery parts of value chains have to be made efficient in order for the small farmers to realise higher returns.
- **Capacity building:** Another major challenge is improvement in the production and supply competencies of the small and marginal farmers. To get better remunerative prices or to produce export quality produce, farmers must have adequate knowledge and capacity.
 - Most of the small and marginal farmers do not realise how to produce, store and preserve agricultural products in a modern and more sophisticated era and how to constantly check the quality.
- **Standards and certification:** Although, in case of agriculture based exportable products testing and health safety regulations and procedures are now mandatory but infrastructure (testing and certification laboratories at crucial custom ports equipped with trained and enough number of staff members) for these have not been up to mark in India.
- **Export Policy:** Exportable agricultural products are not being dealt with clear export promotion policy, which has hindered prospects of these products in overseas markets. **Eg:** Export restrictions can be made at any time. Minimum export price is imposed.
- **Significance of a robust Agri-value chain**
 - Prevent Colossal Wastage of Agriculture Produce “billions of dollars” loss to economy.
 - To ensure that share of Farmer in consumers wallet can increase, which is merely 25-30% as compared to western market where it goes as high as 50-75%.
 - Demand for MSP regime will automatically go away and farmer can expect a rightful price for the produce.
 - To ensure India becomes “Global Hub for Food Industry”

Measures needed

- **Ending APMC monopoly:** States must implement the Model APMC act and follow the precedent set by Maharashtra in this regard.
- **Creating Market Infrastructure**
 - **Physical integration:** Railroad expansion changed the landscape of agricultural markets in USA.
- **Transport and storage infrastructure for perishables:** Transport of perishable commodities in Reefer trucks & freight subsidy would help in better supply and availability of the produce.
- At present, India’s cold storage capacity is nearly 3.5 cr tonnes, short by 30-40 lakh tonnes, and it needs to be increased.
- **Kisan Rail and Kisan Udan** in Budget 2020 are steps in the right direction.
- **Setting up Farmer Producer Organizations and Cooperatives:** It would provide better avenues for pooling of resources to small and marginal farmers. It could also act as a direct marketing channel to supply produce from ‘surplus’ regions to high demand states
- **Nation-wide Price Dissemination Mechanism:**



- Forward Market Commission (FMC) has set up e-portal AGMARKNET that displays real time wholesale price of agricultural commodities on e-portal connected with APMC markets, Kisan mandis, Kisan Vikas Kendras (KVKs), State Agricultural Boards etc.
- Steps must be taken to ensure farmers are benefitted from the scheme.

Conclusion

With agriculture employing nearly half the Indian population even today, it is necessary to implement structural reforms to enhance Agri-value chain. To achieve the ambitious target of doubling farmers income by 2022, productivity and efficiency of value chain in agriculture the key. It will also protect the farmers against shocks and provide food security.

A comprehensive reform process in agriculture would start with a constitutional amendment that makes agriculture and water (use) a concurrent subject in the Constitution. Do you agree? Examine. (250 words)

Times of India

Why this question:

The question examines the importance of making agriculture and water use a concurrent subject from the current status of being in the State list.

Key demand of the question:

Discuss the significance of agricultural reforms in the country and explain what steps need to be taken in this direction. Examine what changes and prospects do transferring the subject of agriculture from State to concurrent will have.

Directive:

Examine – When asked to ‘Examine’, we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Briefly highlight agri scenario in the country – Agriculture is the most important sector of Indian Economy. Indian agriculture sector accounts for 18 per cent of India’s gross domestic product (GDP) and provides employment of around 50% of the countries workforce.

Body:

Discuss that India is the world’s largest producer of pulses, rice, wheat, spices and spice products. India has many areas to choose for business such as dairy, meat, poultry, fisheries and food grains etc.

Explain that a comprehensive reform process in agriculture would start with a constitutional amendment that makes agriculture and water (use) a concurrent subject in the Constitution—there has been precedent for this in the 42nd Amendment of 1976.

The purpose of this amendment would be to provide a federal fillip to states, with a primary emphasis on water effectiveness.

This water effectiveness project will not only focus on bringing more areas under irrigation in a sustainable manner (not with capital but with a thoughtful district by district approach) but also focus on sprinkler and drip irrigation.

Conclusion:

Conclude with way forward.

Introduction:



Agriculture is a state subject, i.e. it forms a part of the state list of our Constitution, which essentially means that states are supposed to address all the issues related to agriculture. The schemes introduced by Center for agriculture have failed time and again due to poor implementation and making the scheme selection optional for states.

Body:

The reason for making agriculture, a state subject:

- Subjects in the state list are the ones considered to **require local knowledge**.
- With our varied agro-climatic zones and cropping patterns, every region was then assumed to have geography-specific agricultural issues.

State schemes are more preferred over central schemes:

- The major stand-out features of state-run schemes are its penetration and acceptability.
- In its first year for Kharif 2017, close to 50% of area under Soyabean (major crop in MP) was covered under the Bhavantar Bhugtan Yojana.
- As per a NITI Aayog report, Karnataka farmers realised 38% more incomes in FY16 from the sale of agri-commodities through the state's e-trading platform.
- Many of the schemes also became the guiding lines for schemes announced by the Central government on the national level. Price deficiency Payment Scheme (PDPS), a part of the umbrella scheme PM-AASHA, was inspired by MP's Bhavantar Bhugtan Yojana.
- Karnataka's electronic market led to the idea of the e-NAM scheme implemented nationwide. Gujarat's soil health card scheme was taken on the national level in 2014.
- And now to solve the overarching problem of agrarian distress, the Central government is studying Telangana's income support scheme for national implementation.

Current performance of agriculture as a state subject:

- In MP, majority of Soyabean farmers had voluntarily registered themselves for **the Bhavantar Bhugtan Scheme**. A stark contrast to other national level schemes assessed, wherein the registrations were done by government officials on behalf of farmers, sometimes even without the knowledge of the farmers.
- In the online market of Mysore division, Unlike the **national level e-NAM, actual inter-state online transactions** were being conducted successfully in these markets.
- The assessment of the national soil health card scheme showed that farmers had responded with better utility for **soil health cards under the state-run scheme**. Most soil health card holders interviewed responded negatively for their usage under the national scheme.

The need for making agriculture and water a concurrent subject:

- Over the years, agriculture has definitely emerged as more than a state subject
- However, logically speaking – unless it is officially transferred to the Union list or more sensibly to the Concurrent list, agricultural problems should also have state developed solutions.
- But it has always been the central government which took the lead in designing reforms for the sector.
- The major beneficiaries of agricultural reforms – farmers – perceive more value from state-run schemes.
- It is thus essential, that agricultural reforms become a two-way street.



- The Central government downloading knowledge of state run-schemes for national implementation is definitely one approach.
- In addition, enhanced financial support to states implementing effective agri-reforms would also prove beneficial.
- The ministry of agriculture's proposed 'ease of doing agri-business' index can be a good parameter for assessing states on agri-reforms.

Conclusion:

The need of the hour is to make the Centre and state governments to work together as a coalition to tide over the issues of agriculture.

Briefly discuss the prospects of Food processing industries in India. Elaborate on the challenges it is facing and suggest way forward to encash its true potential. (250 words)

[Invest India](#)

Why this question:

The question is straightforward and doesn't require much deliberation.

Key demand of the question:

Discuss in detail the objectives, scope and significant prospects of Food processing Industry in the country.

Directive:

Elaborate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Explain first what Food Processing is.

Body:

Food Processing includes process under which any raw product of agriculture, dairy, animal husbandry, meat, poultry or fishing is transformed through a process (involving employees, power, machines or money) in such a way that its original physical properties undergo a change and the transformed product has commercial value and is suitable for human and animal consumption. Present the status of FPI in India and then List down the significance. Explain the possible potential that can be harnessed in this sector. Discuss the govt. initiatives in this direction.

Conclusion:

Conclude that Food processing has numerous advantages which are specific to Indian context. It has capacity to lift millions out of poverty and malnutrition. Government should develop industry in a way keeping in mind the interests of small scale industry along with attracting big ticket domestic and foreign investments.

Introduction:

Food processing has an important role to play in linking Indian farmers to consumers in the domestic and international markets. The Ministry of Food Processing Industries (MoFPI) is making all efforts to encourage investments across the value chain. Major industries constituting the Food processing industry are grains, sugar, edible oils, beverages and dairy products. Food & Grocery retail market in India further constitutes almost 65% of the total retail market in India.

Body:

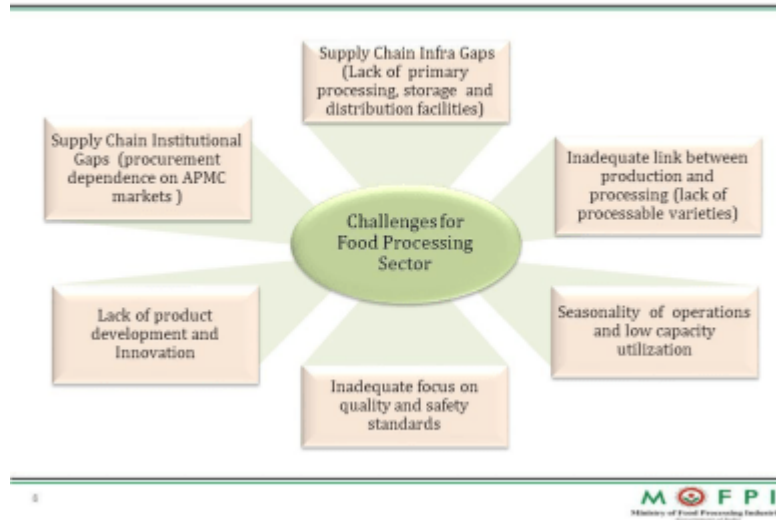
prospects of Food processing industries in India:



- The Food & Grocery market in India is the sixth largest in the world.
- The Processed food market is expected to grow to \$ 543 bn by 2020 from \$ 322 bn in 2016, at a CAGR of 14.6%.
- The industry engages approximately 1.85 mn people in around 39,748 registered units with fixed capital of \$ 32.75 bn and aggregate output of around \$ 158.69 bn.
- The government has sanctioned 40 Mega Food Parks (MFPs) to be set up in the country under the Mega Food Park Scheme. Currently, 17 Mega Food Parks have become functional.

Issues food processing industry is facing:

Food Processing Sector- Impediments



- **Supply chain issues:**
 - high cost of raw material (driven by low productivity and poor agronomic practices)
 - Presence of intermediaries and APMC acts make it more complicated.
 - high cost of packaging, finance, transport and distribution
 - lack of organized retail
- **Logistics cost:**
 - Logistics cost is high for transportation, warehousing, material handling etc.
 - In India, Logistics accounts for about 13% of GDP, which translates to over USD130 billion.
 - This cost is significantly higher as compared most developed countries.
- **Economic issues:**
 - In India, the food processing industry is highly fragmented and is dominated by the unorganized sector
- **Inadequate infrastructure:**
 - The inadequate support infrastructure which is the biggest bottleneck in expanding the food processing sector, in terms of both investment and exports includes:



- long and fragmented supply chain
 - inadequate cold storage and warehousing facilities
 - Inadequate road, rail and port infrastructure.
 - lack of modern logistics infrastructure such as logistics parks, integrated cold chain solutions, last mile connectivity,
- **Political issues:**
 - Absence of Comprehensive national level policy on food processing sector: The food processing sector is governed by statutes rather than a single comprehensive policy on food processing. India urgently needs a national food processing policy which incorporates tax breaks for the sector.

Measures needed to plug supply side and infrastructure bottleneck:

- Foster development of backward linkages by evolving conducive regulatory framework for contract and corporate farming
- The North Eastern Region, the Hilly States (J&K, HP and Western UP), the Islands (A&N, Lakshadweep) areas in the country should be given special consideration as they are naturally conducive for Food Processing Industries.
- Encourage commodity clusters and intensive livestock rearing.
- Promote private sector participation with well-defined roles of the participants, risk sharing mechanisms, fiscal incentives and partnership models for creation of infrastructure for logistics, storage and processing
- Encourage technology up gradation of existing facilities and investment in development of ancillary industries like research and development, packaging, food processing equipment manufacturing, food safety certifying agencies by extending fiscal incentives to investors.
- Enable better access to credit by augmenting current cap of Rest 10 crore investments in plant and machinery to qualify as Priority Sector Credit to accommodate the high cost technology adoption and scale enhancement
- **Streamlining the regulatory structure:**
 - Remove impediments of multiple departments and laws in seeking approvals by bringing them under a single window.
 - Ensure uniform implementation of the APMC act to encourage private sector investment in infrastructure development.
- **Change in mind set -Orienting stakeholders towards 'demand and profit driven production'**
 - Participants across the agri value-chain need to shift their focus from trying to market 'what is produced' to producing 'processable varieties and marketable products' meeting global quality standards and traceability requirements, duly adopting need based viable technologies and quality controls.
- **Human resource development-to meet increasing demand for skilled manpower:**



- Stimulate industry, academia and government to put in combined efforts for development of specialized institutes and courses for providing training on managerial, safety and enforcements, technology and production, warehousing and distribution aspects.
- Encourage State Agricultural Universities to commence courses in food packaging, processing, bio-technology, information technology in agriculture and such allied fields

Conclusion:

India's food ecosystem offers huge opportunities for investments with stimulating growth in the food retail sector, favourable economic policies and attractive fiscal incentives. The need of the hour is to adopt an integrated approach to address the above mentioned tailbacks with a clear-cut focus on improving the quality and value of the output, reducing the cost of raw material for the processors, while improving the farmers' income levels. To promote this sector, attempts are required to be made to promote farmer-producer interaction, provide appropriate tax incentives and holidays for setting up food processing industries, taking care of expenses on market promotion and ancillary activities.

Inspect role that supermarkets play in supply chain management of horticulture products. How do they eliminate the issue of intermediaries? Discuss. (250 words)

[The Hindu Business Line](#)

Why this question:

The question is based on the significance of supermarkets and the role played by them in SCM of horticulture products.

Key demand of the question:

Discuss the significance of Supermarkets in SCM of agri products and produce, suggest where India stands in this aspect and what more is required to be done.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Fruits and Vegetable (FFV) are one of the most important components of a retail chain (supermarket). It acts as a strategic product in attracting the customers. Agri-food produces from the farmer's field reach the end consumer through a long chain of intermediaries such as farmers/growers, cooperatives, wholesalers, retailers, commission agents, etc.

Body:

Discuss the role of supermarkets in the supply chain:

The concept of agri-supply chain refers to the activities of procurement, order fulfillment, distribution, delivery and customer service executed by two or more separate organizations in the agribusiness industry.

Agrisupply chain consists of small and medium enterprises.

Supply chain collaboration has become the prerequisite for successful procurement and operational business practices for perishable products with the emerging trends of globalization and competitive marketplace.

Supply chain planning in the agri-food industry integrates the complex network of farmers, demand, and supply to end consumers to enhance operational effectiveness.

Discuss its significance to Indian agri systems.



India is one of the leading producers of vegetables, fresh fruits and a number of food items. Marketing of fruits and vegetables especially is more challenging than many industrial products because of their perishability, seasonality and bulkiness. A supermarket is a self-service shop offering a wide variety of food and household products.

Explain challenges and issues if any and what way they can be addressed.

Conclusion:

Conclude with way forward.

Introduction:

Fruits and Vegetable (FFV) are one of the most important components of a retail chain (supermarket). It acts as a strategic product in attracting the customers. Agri-food produces from the farmer's field reach the end consumer through a long chain of intermediaries such as farmers/growers, cooperatives, wholesalers, retailers, commission agents, etc.

Supermarkets play a very important role in supply chain management of fruits, vegetables and food items. Supermarket chain such as SAFAL, Reliance Fresh, Easy Day, Big Basket, TESCO etc. provide backward as well as forward linkage in the supply chain

Body:

As part of supply chain, the **retail chains (supermarkets) respond to upstream-side demand and absorb downstream-side risks** with the objective to augment, retain, satisfy consumers and gain new revenue opportunities without the creation of excess inventory or capacity.

Role of supermarkets in the supply chain:

- The concept of agri-supply chain refers to the activities of procurement, order fulfilment, distribution, delivery and customer service executed by two or more separate organizations in the agribusiness industry. Agrisupply chain consists of small and medium enterprises.
- Supply chain collaboration has become the prerequisite for successful procurement and operational business practices for perishable products with the emerging trends of globalization and competitive marketplace.
- Supply chain planning in the agri-food industry integrates the complex network of farmers, demand, and supply to end consumers to enhance operational effectiveness.
- Super markets have eliminated the middleman in the distribution channel which reduces the amount of logistics and transportation required in the movement of goods from manufacturer to consumer. This increases efficiency significantly.
- Manufacturers, for instance, can skip wholesalers and more quickly replenish retailers with stock. Additionally, companies can offer products and websites and quickly ship them to consumers following the purchase.

Measures for increasing efficient of supply chain:

- There is a need for backward linkage with the farmer via contract farming
- The retail stores have to be organised in a structured way for an efficient distribution of products.
- There is a need for more cold storages so as to reduce losses due to spoilage.
- The APMC Act at the state level needs to be amended.

Conclusion:



Reducing intermediaries helps consumer in getting quality agriculture produce at less price. It helps farmer in getting better and assured return for their produce. It helps in increasing income of agricultural household thus reducing rural – urban migration, it also prevents farmers from falling into trap of informal moneylenders. Thus streamlining the supply chain either by supermarket or by cooperative not only helps in reducing intermediaries but also helps in bringing prosperity to rural community.

The recent Onion crisis is the result of market inefficiencies, weak supply chains and monopolies in the market. Analyse and suggest solutions to the above problem. (250 words)

Business Standard

Why this question:

The question is in the current context of fluctuating onion prices in the economy.

Key demand of the question:

Discuss in detail the underlying causes of such price fluctuations owing to market inefficiencies, weak supply chains and monopolies in the market.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

The onion – ubiquitous in Indian cooking – is widely seen as the poor man's vegetable.

Body:

Discuss the causes of such fluctuation – like a drop in supply, due to heavy rains and flooding destroying the crop in large parts of India etc. are common that reason out to contribute to the price instability. Discuss the concerns associated with market inefficiencies, weak supply chains and monopolies in the market.

Explain what needs to be done? Suggest solutions such as – grass-root planning and better storage facilities and food processing services will ease the problem – and making a variety of cash crops and vegetables available across the country would also ease the pressure on onions.

Conclusion:

Conclude with way forward.

Introduction:

Onion prices, which have quite frequently seen a steep increase in the post-monsoon season in recent years, normally subside by November. But this year, the high prices linger on and there is no sign of normalisation anytime soon. Though this can partly be attributed to the monsoon-driven delay in the sowing and harvesting of the kharif onion crop, the alarm and scarcity psychosis created by the government through its ill-advised and mistimed market interventions are also to blame.

Body:

Reasons for Onion price rise:

- The root cause of the recurring onion crisis is the disregard of the reality that while the demand for onions persists the year-round, its supply is seasonal.
- India, in a way, is fortunate to be able to grow onions thrice a year — in the early kharif, late kharif and rabi seasons. The produce of these crops feeds the market between November and June.
- The period from July to October is usually the lean season when fresh supplies are not available and the market needs to be fed from the stored stocks.



- Therefore, the most critical aspect of supply management is the safe upkeep of the surplus produce for the lean period.
- Unfortunately, this is generally disallowed as storage is viewed negatively as hoarding for profiteering.
- There is, no doubt, only a thin line between storage and hoarding but this distinction needs to be realised at least in the case of onions.
- The government's ill-advised actions like imposition of stock limits under the Essential Commodities Act and raids on those maintaining large inventories deter traders as well as farmers from retaining the surplus produce for subsequent release.

Measures needed:

- For stabilising retail prices of fresh TOP, and ensuring a higher share of the consumer's rupee to farmers, policy makers need to focus on three things.
- **First, Ample storage for buffer stocks has to be created:**
 - While potatoes and onions can be stored, repeated stocking limits on onion traders discourages private investments in modern cold storages.
 - For inviting large private investment in storages, the Essential Commodities Act has to go.
 - If the government feels that traders are colluding to rig the market, then the Competition Commission of India should look into it.
 - The government banning exports or imposing stocking limits is not a solution.
- **Second, Increase processing capacities for TOP:**
 - Since buffer stocking for tomatoes is not possible, processing remains the only solution.
 - For this, the GST for tomato puree and juice should be reduced from 12 per cent to 5 per cent. Milk and most milk products attract 0 to 5 per cent GST.
 - To propagate the use of processed products (tomato puree, onion flakes, powder) among urban and bulk consumers (hospitals, schools, armed forces), the government should run campaigns in association with industry organisations, as was done for eggs.
 - Most of the advanced countries use large quantities of processed tomatoes and onions, which can be stored conveniently.
 - India needs to have time bound targets to process and export at least 10-15 per cent of TOP production.
 - While India exports 10-12 per cent of onion production in fresh and dehydrated form, it exports less than 1 per cent of tomatoes and potatoes production.
- **Third, Buying directly from FPO's:**
 - Direct buying by organised retailers from farmer producer organisations (FPOs) through contract farming, bypassing the mandi system, should be encouraged.



- Like dairy cooperatives, TOP cooperatives and retail outlets like Safal across the country should be opened. With over 400 Safal outlets across Delhi-NCR, onions are being sold at Rs 25/Kg when retail prices are hovering between Rs 50-60/Kg.
- A similar thing could have been done for tomatoes. However, this will require value chain development starting with market reforms along with overhauling the infrastructure of existing APMC mandis in the country.
- With crumbling infrastructure, many APMC mandis are running over their capacity.
- Visit to the Kolar mandi, one of the largest tomato mandi in the country, spread over 20 acres, revealed that the operations of the mandi have spread to adjoining areas.
- For better functioning, it requires at least two to three times more land and much better infrastructure.

Way forward:

- Promote modern cold storages and develop a system similar to that of the warehouse receipt system for farmers.
- States must launch a concerted intelligence drive to crack down on hoarders and bring the stocks to the market swiftly.
- Encourage imports.
- Set up onion dehydrating units and promote demand for dehydrated onions amongst large consumers.
- More policy making and political attention should be devoted to raising onion output, or for that matter farm output in general. Complacency on the farm front is wholly avoidable.

Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

What is National Infrastructure Pipeline? Elucidate upon the key benefits of National Infrastructure Pipeline (NIP) (250 words)

[Live mint](#)

Why this question:

The question aims to discuss the National Infrastructure Pipeline and its benefits.

Key demand of the question:

Discuss in detail the objectives, significance and contributions of such a project to the economy of the country.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

It is estimated that India would need to spend \$4.5 trillion on infrastructure by 2030 to sustain its growth rate. The endeavor of the National Infrastructure Pipeline (NIP), is to make this happen in an efficient manner.

Body:

Discuss that NIP will enable a forward outlook on infrastructure projects which will create jobs, improve ease of living, and provide equitable access to infrastructure for all, thereby making growth more inclusive.



NIP includes economic and social infrastructure projects.

Explain in what way such infrastructure projects would ensure ease of living: safe drinking water, access to clean and affordable energy, healthcare for all, modern railway stations, airports, bus terminals and world-class educational institutes etc.

Conclusion:

Conclude that Infrastructure investment has a special role to play as it aids to revive economic activities.

Introduction

To achieve the GDP of \$5 trillion by 2024-25, India needs to spend about \$1.4 trillion (Rs. 102 lakh crore) over these years on infrastructure. The objective of NIP is to create bouquet of well-prepared projects would attract investment from Central and State Governments, Urban Local Bodies, Banks and Financial Institution, PE funds, and private investors, both local and foreign.

- The NIP has projected total infrastructure investment of Rs. 102 lakh crore during the period FY 2020 to 2025 in India.
- NIP is expected to enable well-prepared infrastructure projects which will create jobs, improve ease of living, and provide equitable access to infrastructure for all.

Body

Key Benefits of NIP

- **NIP includes both economic and social infrastructure** projects.
 - Economic infra includes: Roads, energy, railways, shipping, steel etc.
 - Social infra includes: Education, health, sports etc.
- **Sustaining the Virtuous Cycle:** Economic Survey 2019 argues that growth can be sustained by a virtuous cycle approach where investment is the key driver that drives demand, creates capacity, increases labour productivity, improve ease of living, generates jobs etc.
 - **NIP** is prepared as a pipeline of projects based on viability and cost considerations to enable such investments.
- **Employment Generation:** Going ahead, share of urban employment will be higher than rural employment. To sustain this, infrastructure under NIP will be vital in the coming years.
- **Increasing urbanization:** 42 per cent of population is expected to live in urban areas in 2030 as opposed to 31 per cent now. Infrastructure to provide transport, housing, public spaces are vital for human development. This will be addressed by NIP.
- **Reviving the economy:** According to the latest estimates, the Indian economy will grow at 5% in the current fiscal year ending March. The growth projected is slower than the 6.8% recorded in 2018-19. In the quarter that ended in September 2019, growth had hit a six-year-low at 4.5%.
 - **NIP** will help in reviving the investment cycle and spur growth through capital formation.
- The **greenfield and brownfield projects** are across power, urban development, irrigation, mobility, education, health, water and digital sectors across 18 states and Union territories.



Challenges

- **Fiscal constraint:** In FY 2019, India's total infrastructure investments were about Rs. 10 lakh crores only. And given the challenges like high debt-to-GDP ratio, fiscal deficit and increasing twin balance sheet problem, it would be very tough to finance these projects.
- **Bank Credit:** Infrastructure financing is the cause of a major part of the bad loans in banks. So, banks would be apprehensive to finance such a large scale of investment.
- **Cooperation from States:** Centre and the states have to work together to sort issues like land acquisition and environmental clearances which have imposed huge time and cost delays on several key projects nationally.
- **Lack of new projects:** About 42% of identified projects under NIP are already under implementation, 19% are under development.

Conclusion

The road map for infrastructure creation has never been easy. The answer possibly lies enhancing private investment through a combination of measures like credit enhancement which is conditional upon specific reforms in areas like user- charges, land aggregation & monetization, deepening of municipal bond markets among others.

Will natural gas play the game-changer in India's energy future? Discuss. (250 words)

The Hindu

Why this question:

A study to facilitate the development of a national gas grid is to be undertaken soon by a U.S. entity for the Petroleum and Natural Gas Regulatory Board (PNGRB). Thus the question.

Key demand of the question:

Discuss the prospects of Natural gas and in what way it can be a game changer in India's energy future.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly provide facts for Natural gas scenario in the country.

Body:

Globally, natural gas constitutes 24 per cent of the primary energy consumption. In India, Gujarat, which has relatively better access to natural gas, is having a share of 25 per cent in its energy basket. The government proposes to increase the share of natural gas in the whole of its energy consumption to 15 per cent by 2020.

Discuss the prospects in detail. Use a map to pictorially represent the resource availability in the country.

Explain the challenges posed by the industry.

Discuss the efforts of the government in this direction.

Conclusion:

Conclude with way forward.

Introduction:



Natural gas is a superior fuel as compared with coal and other liquid fuels, as it is environment friendly, safer and cheaper fuel. It can be supplied through pipelines and hence, there is no need to store cylinders in kitchen and thus saves space. It is environment friendly fuel and its usage as domestic kitchen fuel, as fuel for transport sector as well as fuel for industries and commercial units can play a significant role in reducing carbon emission. It is 60% cheaper compared with petrol and around 45% cheaper when compared with Diesel. A study to facilitate the development of a national gas grid is to be undertaken soon by a U.S. entity for the Petroleum and Natural Gas Regulatory Board (PNGRB).

Body:

Globally, natural gas constitutes 24 per cent of the primary energy consumption. In India, Gujarat, which has relatively better access to natural gas, is having a share of 25 per cent in its energy basket. The government proposes to increase the share of natural gas in the whole of its energy consumption to 15 per cent by 2020.

Current scenario:

- Currently, share of natural gas in India's energy mix is just over 6% and aim is to reach 15% figure for moving towards gas based economy, while world average is 24%.
- The natural gas pipeline network in India totalled 16,324 km as on April 2019, according to official figures.
- Nearly 7,000 km of pipeline is under construction.
- In addition, the CGD projects, to supply the environment-friendly and cost-effective fuel to commercial, industrial and residential users, will see several thousand more kms of steel pipeline getting added.
- Share of natural gas in India's energy basket is 6.2% as against 23.4% globally and is expected to increase.

Potential of natural gas as a game changer:

- India aims to bring down its carbon emission level and number of initiatives have been taken in this direction such as BS VI fuel, bio-energy, LED bulbs, International Solar Alliance (ISA), Pradhan Mantri Ujjawala Yojana and providing clean piped gas supply to more cities.
- India is also enhancing LNG terminal capacity, renegotiating Indo-Qatar Gas deal and encouraging positive Indo-US engagement in this direction.
- It is not only focussing on increasing use and supply of gas, but also on producing gas through agro-wastes and other products and including same into City Gas Distribution (CGD) network.
- It has also increased its focus on promoting the usage of environment-friendly clean fuel, natural gas as fuel and feedstock across country to move towards gas based economy.
- The National Gas Grid together with providing gas connections to households will provide better infrastructure for automobiles using gas.
- The National Gas Grid will also aid in renewing of the fertilizer sector and also give a boost to the Power and Automotive sector

Conclusion:

It is good that the gas network is being laid but it also depends on the consumers to pay for the pipeline connection. The government is doing well by fixing the City Gas Distribution network and simultaneously extending the pipeline infrastructure. But the limits of this outreach will depend on India's limits to be able to import those quantities of gas in terms of availability of exchange in times



to come. To some consumers, gas could be a bridge fuel before they move on to electricity for clean cooking.

Briefly discuss the pros and cons of the idea of privatizing the Indian Railways (250 words)

The Hindu

Why this question:

The question seeks to examine the aspects of privatizing the Indian Railways services.

Key demand of the question:

Discuss in detail the opportunities and obstacles that the idea of privatizing Railways pose.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Highlight the idea of Privatization in general and the perks it carries with it.

Body:

Start with – The Bibek Debroy Committee, which was set up to suggest ways to mobilize resources for the Indian Railways and restructure the Railway Board, has favored privatization of rolling stock: wagons and coaches.

Discuss the positives of such a move – Improved Infrastructure, Balancing Quality of Service with High Fares, better accountability etc.

Explain the challenges associated.

Discuss why India right now cannot afford privatization of Indian Railways.

Conclusion:

Conclude with way forward.

Introduction:

Post privatisation of the Tejas Express (to be run by the IRCTC), the government is currently in the process of forming a task force to draw a blueprint for handing over operations of as many as 150 trains and a total of 50 railway stations to private operators. The Bibek Debroy committee recommended that the rail industry needs to be liberalized by allowing the entry of private operators to provide services.

Body:

Pros of privatization of Indian railways:

- **Improved Infrastructure:** Privatisation will lead to better infrastructure which in turn would result in improved amenities for travellers.
- Currently, Indian Railways is marred by mismanagement in the form of stinking washrooms, lack of water supply and dirty platforms, it is expected that a private company will ensure better amenities.
- **Normalization of prices** due to the competition: Improvement in quality of services has to be matched up by a rise in charges paid by the travellers.
- However, the issue of price rise will be solved when private players are allowed to enter the sector since the move would foster competition and hence lead to overall betterment in the quality of services.
- **Improved Security:** Private participation can lead to better accountability and monitoring, which can keep a check on rising accidents in railways.



- **Better Technological Innovation:** Private participation can lead to the infusion of modern technology and capacity building of Indian railways.

Cons of Privatisation of Indian Railways:

- **Limited Coverage:** An advantage of Indian Railways being government-owned is that it provides nation-wide connectivity irrespective of profit.
- Privatisation of railways would mean the railways will become a profit-making enterprise, this would lead to the elimination of railways routes that are less popular.
- Thus, the privatisation of railways can have a negative impact on connectivity and further increase the rural-urban divide.
- **Lesser Inclusive:** Hike in fares can render the railways out of reach for lower-income groups.
- Issue of Accountability: The privatisation of Indian Railways is not easy, as it covers every part of India and runs for 24×7 hours.
- The whole railway system cannot be handled by a single party or coordination will be very difficult if area wise given to private parties.
- **Impact on the Economy:** Indian Railways is the backbone of India, it provides low fare transportation to agricultural and industrial trade.
- Therefore, privatisation of Indian railways shall definitely affect the Indian economy at large.
- It is difficult to privatize a portion of the railways' operations as it is strongly vertically integrated.
- Vertical integration of railways means ownership and maintenance of the rail and associated infrastructure; all is vested under the Ministry of Railways.
- The strong worker unions of Indian Railways need to be convinced. This could be a herculean task.
- Any untoward incidents like accidents can cause greater government scrutiny and create regulations which may affect performance or efficiency.
- Regulations must ensure level playing field for all players and relevant stakeholders.
- Competition from other modes of transport can affect private railway revenues. This could give rise to crony capitalism.

Way forward:

- Privatisation of railways operations will require a new institutional framework where infrastructure will remain as a government's monopoly while there would be a market of service providers.
- It is important to modernize the railways, so measures must be taken to reimburse the social costs speedily so that resources of the railways is better allocated and facilities are upgraded from time to time.
- Core Railways functions can be Corporatized rather than privatized.
- Corporatization refers to the restructuring or transformation of a state-owned asset or organization into a corporation. These organizations typically have a board of directors, management, and shareholders.
- However, unlike publicly traded companies, the government is the company's only shareholder, and the shares in the company are not publicly traded.
- The peripheral function of railways (cleanliness, ticket disposal, traveller's amenities), must be privatized.



Science and Technology- developments and their applications and effects in everyday life; Achievements of Indians in science & technology; indigenization of technology and developing new technology.

Analyse the probable impact of frontier technologies on developing countries.(250 words)

[Live Mint](#)

Why this question:

The article explains the fact that Frontier technologies are set to transform people's lives, and developing nations must harness this revolution. But there is a danger that the gains will not reach the world's poorest.

Key demand of the question:

One must provide for a detailed analysis of the probable impact of frontier technologies on developing countries.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

The rapid technological transformations that started from the Industrial Revolution to the digital revolution, have boosted economic performance, improved efficiency, accelerated the pace of globalization, and transformed human society in the process.

Body:

Explain that Frontier Technology or Industrial Revolution 4.0, the latest wave of disruptive technological change is fundamentally altering how goods, services and ideas are exchanged. However, the disruptive nature of technology is nothing new, and it offers promising new opportunities, while at the same time posing a challenge to policymaking.

Discuss in detail what are frontier technologies and their applications.

Explain the associated challenges in detail.

Specifically discuss the case with developing countries; The Pathways for Prosperity Commission on Technology and Inclusive Development has shown that developing countries can still harness the new wave of frontier technologies for the benefit of all.

Conclusion:

Conclude with way forward.

Introduction:

Frontier technologies are defined as potentially disruptive technologies that can address large-scale challenges or opportunities. Frontier technology is the next phase in the evolution of modern technology. It is the intersection where radical forward-thinking and real-world implementation meet. For example AI, robotics, 3D printing, and the Internet of Things, etc. Frontier Technology or Industrial Revolution 4.0, the latest wave of disruptive technological change is fundamentally altering how goods, services and ideas are exchanged.

Body:

Impact of frontier technologies on developing countries:

Positives:

- Frontier technologies have unlocked new routes to prosperity through agriculture, manufacturing, trade in services, the linking of informal and formal sectors, and domestic interconnectivity.



- They have enormous potential to improve government administration and the delivery of public services.
- They can help anticipate and respond to the effects of climate hazards and air pollution through the adoption of state-of-the-art technologies to address environmental impacts.
- In the Republic of Korea, the smart city of Songdo is built around the Internet of Things to reduce traffic pollution, save energy and water, and create a cleaner environment.
- It will be critical that these technologies work for society and the environment as well as the economy if the world is to achieve the ambitions of the 2030 Agenda for Sustainable Development.

Challenges posed by frontier technologies:

- Digital Exclusion:
 - As Information and Communication Technology infrastructure is the backbone of many frontier technologies, there is a risk of its triggering a new frontier technology divide, compounding an already existing digital divide.
 - An estimated three billion people could still lack internet access by 2023, and many more will have little or no opportunity to reap the benefits of digital technologies.
 - There is a danger that gains associated with frontier technologies will not reach the world's poorest people.
- Uncertain Future of Work:
 - In the coming decades, the jobs of 785 million workers, that's equivalent to over 50 % of total employment in the Asia-Pacific region could be automated.
- Trust and Ethical Questions:
 - Frontier Technology per se is not the problem, but there are ethical issues surrounding privacy, ownership and transparency.
 - With the world's population projected to reach ten billion by mid-century, global governance will become even more complex than it is today.
- Developing countries, in particular, are starting from a difficult position, because they are already grappling with the challenges of low human capital, ineffective institutions, and a difficult business environment.

Conclusion:

The Pathways for Prosperity Commission on Technology and Inclusive Development has shown that developing countries can still harness the new wave of frontier technologies for the benefit of all.

Way forward:

- An inclusive ICT infrastructure.
- A workforce fit for the emerging scale and speed of the technological revolution.
- In this context, there is a need to promote lifelong learning, reskilling and entrepreneurship development to develop a cadre of job creators.
- A policy framework to strengthen public-private partnerships, so as to capture the benefits of the Fourth Industrial Revolution.



- A responsive and adaptive regulatory framework that doesn't stifle innovation.
- Whole-of-economy or Most-of-society approach: Technology alone will not guarantee success. Policymakers must also account for local contexts and conditions so that they can create social, political and economic ecosystems in which technology creates jobs and drives inclusive growth.
- National governments should start planning for digital readiness in four areas: infrastructure, human capital, policy and regulation, and finance.

What do you understand by a civic technology? Discuss in what way they can pave the way towards more progressive and democratic political systems.(250 words)

[Live Mint](#)

Why this question:

The question is based on the concept of Civic technologies.

Key demand of the question:

Discuss in detail what you understand by civic technologies and how they can pave the way towards more progressive and democratic political systems.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Define what a civic technology is.

Body:

Civic technology, or civic tech, enhances the relationship between the people and government with software for communications, decision-making, service delivery, and political process. It includes information and communications technology supporting government with software built by community-led teams of volunteers, nonprofits, consultants, and private companies.

Take queues from the article and explain how they can lead to more progressive and democratic political systems.

Conclusion:

Conclude with significance, discuss that civic technology focuses on improving the daily lives of individuals, making the society more equitable and improving the efficiency of organizations such as the government.

Introduction:

Civic technology, or civic tech, enhances the relationship between the people and government with software for communications, decision-making, service delivery, and political process. It includes information and communications technology supporting government with software built by community-led teams of volunteers, non-profits, consultants, and private companies.

Body:

In the Indian context, civic technology can broadly be divided into two themes—**tools aimed at improving civic engagement**, and **those directed at streamlining government services**.

Civic technology can lead to progressive and democratic political systems:

- Civic technology solutions enhance the relationship between people and government, by giving people more of a voice to participate in public decision making and/or to improve the delivery of services usually by government to people.
- These technologies can be developed by either non-profit organizations or for-profit companies, or even by government itself.



- Civic technology solutions are not restricted to urban local bodies or to citizen-driven initiatives.
- Because of the conveniences provided by civic technology, there are benefits as well as growing concern about the effects it may have on social behavior and civic engagement.
- New technology allows for connectivity and new communications, as well as changing how we interact with issues and contexts beyond one's intimate sphere.
- Civic technology affords transparency in government with open-government data, and allows more people of diverse socioeconomic levels to be able to build and engage with civic matters in a way that was not possible prior.
- For instance, OnlineRTI streamlines the process of applying for and receiving information from the government under the Right to Information Act.
- Regarding elections and online polling, there is the potential for voters to make less informed decisions because of the ease of voting.
- The seeds of civic technology in India were sown as early as 2012, when **ICChangeMyCity** enabled citizens to share complaints about civic issues through its platform.
- It also provided municipalities with real-time grievance data to resolve.
- Building on this, organizations such as Reap Benefit, through their online platform, work with young people to create solutions for civic problems such as low-cost sanitation systems from discarded plastic.

Way forward:

- To make the 2020s the decade of civic technology in India, entrepreneurs can work to create diversified business models and build robust impact assessment frameworks for their organizations.
- Governments can continue to work with and encourage civic-technology platforms through startup competitions and partnerships.
- Investors and philanthropists have the opportunity to craft innovative funding models to fuel growth.
- Organizations working to support civic tech in India like D-Prize, Omidyar Network, Rohini Nilekani Philanthropies and Village Capital are already paving the way.

Conclusion:

The promise of civic technology, broadly defined here as new, lower-cost technologies or platforms meant to facilitate citizen feedback, foster government accountability, and create an iterative relationship between the two. In India, a growing number of internet users is coupled with a young population, accustomed to demanding participation in all facets of their lives, including greater participation in governance. This combination is pushing governments to be more participatory and efficient.

What do understand by Scientific social responsibility (SSR)? Discuss the need and significance of having a dedicated policy to ensure SSR is achieved in a right manner .(250 words)

[The Hindu](#)

Why this question:

Science outreach programme was on the agenda on the third day of the 107th Indian Science congress. Central government has a plan to launch a Programme on implementing scientific social responsibility (SSR).

Key demand of the question:

Telegram: <https://t.me/insightsIAStips>

Youtube: <https://www.youtube.com/channel/UCpoccbCX9GEIwaile4HLjwA>

Facebook: <https://www.facebook.com/insightsonindia>



Discuss in detail the aspects of SSR and its importance. Explain why the country needs a dedicated policy to ensure SSR is in place.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Define what is SSR – The ethical obligation of knowledge workers in all fields of science and technology to voluntarily contribute their knowledge and resources to the widest spectrum of stakeholders in society.

Body:

Explain in detail the significance of SSR.

To encourage science and technology (S&T) institutions and individual scientists in the country to proactively engage in science outreach activities to connect science with the society.

To harness latent potential of the scientific community for strengthening linkages between science and society, and for making S&T ecosystem vibrant.

To develop a mechanism for ensuring access to scientific knowledge, transferring benefits of science to meet societal needs, promoting collaborations to identify problems and develop solutions.

Explain the need for a dedicated policy to ensure SSR is in place.

Discuss the highlights of the draft policy dedicated to SSR.

Conclusion:

Conclude with need and significance of SSR; When most research is being done by using taxpayers' money, the scientific establishment has an ethical obligation of "giving back" to the society. SSR is not only about scientific impact upon society but also about the social impact upon science. SSR would therefore strengthen the knowledge ecosystem and bring efficiencies in harnessing science for the benefit of society.

Introduction:

Scientific Social Responsibility (SSR) is the confluence of scientific knowledge with visionary leadership and social conscience. SSR is about building synergies among all stakeholders in our scientific knowledge community and also about developing linkages between science and society.

India is going to be possibly the first country in the world to implement a Scientific Social Responsibility (SSR) Policy on the lines of Corporate Social Responsibility (CSR). A draft of the new policy has been made available by the Department of Science and Technology (DST).

Body:

Highlights of the draft:

- Under the proposed policy, individual scientists or knowledge workers will be required to devote at least 10 person-days of SSR per year for exchanging scientific knowledge to society.
- It also recognises the need to provide incentives for outreach activities with necessary budgetary support.
- It has also been proposed to give credit to knowledge workers/scientists for individual SSR activities in their annual performance appraisal and evaluation.
- No institution would be allowed to outsource or sub-contract their SSR activities and projects.
- The draft defines SSR as "the ethical obligation of knowledge workers in all fields of science and technology to voluntarily contribute their knowledge and resources to the widest spectrum of stakeholders in society, in a spirit of service and conscious reciprocity".



- A central agency will be established at DST to implement the SSR. Other ministries would also be encouraged to make their own plans to implement SSR as per their mandate.

Need for SSR:

- The earlier S&T policies have also emphasised on the utilisation of science for welfare of the people.
- However, the new India with its vibrant young populace is a country of ambition and aspiration, requiring a renewed emphasis on the integration of S&T with society at both the institutional and individual levels.
- When most research is being done by using taxpayers' money, the scientific establishment has an ethical obligation of "giving back" to the society.
- SSR is not only about scientific impact upon society but also about the social impact upon science.
- SSR would therefore strengthen the knowledge ecosystem and bring efficiencies in harnessing science for the benefit of society.
- An institutional mechanism through SSR policy, facilitating easy access to resources and knowledge, would be a significant step in the right direction.
- This will have far reaching implications for the new initiatives such as Transformation of Aspirational Districts, Make in India, Swachh Bharat and Digital India, leading to inclusive growth and development.
- SSR would inculcate moral responsibility amongst scientific community which may trigger social entrepreneurship and start-ups impacting S&T ecosystem and society.
- This policy would strengthen the existing efforts of institutions in an organised and sustainable manner

Significance of SSR:

- Expanding the domain of science and its benefits to the community. Encouraging students into science through handholding and nurturing their interest.
- Creating an opportunity for cooperation and sharing of S&T resources in laboratories with other researchers in universities and colleges.
- Providing training for skill development and upgrading scientific knowledge.
- Helping MSMEs, Startups and informal sector enterprises in increasing their overall productivity. Facilitating scientific intervention in rural innovation.
- Empowering women, disadvantaged and weaker sections society through scientific intervention. Identification of best practices and success models on SSR for replication with multiplier effect in the country.
- Facilitating actions towards addressing Technology Vision 2035 Prerogatives and Sustainable Development Goals (SDGs) of the country such as water, ecology, health and livelihood.

Conclusion:

SSR envisages strengthening science-society linkages in an organic manner by building synergy among all the stakeholders so as to usher in a cultural change in the conduct of science for the benefit of society at large in the country.



Discuss the prospects and challenges posed by Blockchain technology; what opportunities does it have to offer to the social sectors in the country? Discuss. (250 words)

[News on Air](#)

Why this question:

The question aims to ascertain the applications of Blockchain technology and its aid to social sector. National Informatics Centre (NIC) has set up the Centre of Excellence (CoE) in Blockchain Technology in Bengaluru, Karnataka.

Key demand of the question:

Discuss the significance of Blockchain technology and its application.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly define Blockchain technology.

Body:

Blockchain technology is upcoming & niche technology and adoption of the same in sectors such as health, finance, agriculture and various other sectors would aid the government in implementing various programmes and provide trust and immutability to the assets.

Explain the applications of Blockchain technology, With National Informatics Centre (NIC) providing a robust and an agile infrastructure, the CoE shall also provide Blockchain as a Service (BaaS) for efficient hosting of Blockchain network.

Conclusion:

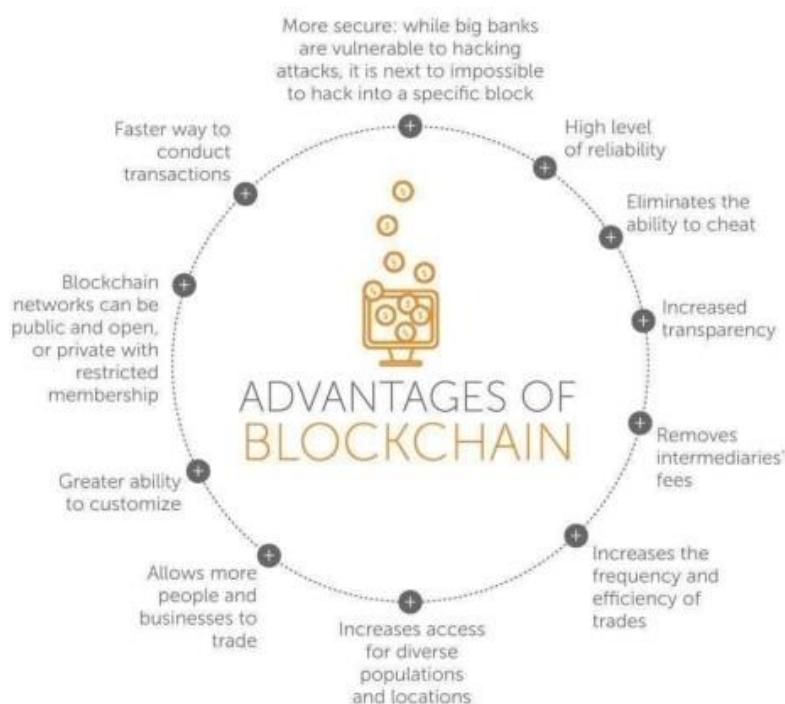
Conclude with futuristic advantages of Blockchain Technology.

Introduction:

Blockchains are a new data structure that is secure, cryptography-based, and distributed across a network. The technology supports cryptocurrencies such as Bitcoin, and the transfer of any data or digital asset. Anything recorded on them cannot be deleted, and is instantly uploaded to all users on that blockchain. Blockchain is being researched across the banking and financial services industries.

Body:

In Karnataka, Bengaluru has come up with a Centre for Excellence in Blockchain Technology. This technology helps in enhancing transparency and trust in e-Governance system by allowing all stakeholders benefit from shared learning, experiences and resources. Set up by the National Informatics Centre, the Centre for Excellence would help to bring a revolutionary change in the lives of the people by delivering e-governance services effectively through the data-centric model.



Prospects:

- Bitcoin is just one of the applications for the technology, whose use is being tested across industries.
- Healthcare, banking, education, agriculture, electricity distribution and land records are sectors that could benefit.
- Blockchain-powered smart contracts, where every piece of information is recorded can enhance ease of doing business.
- It will augment the credibility, accuracy and efficiency of a contract while reducing the risk of frauds, substantially.
- Blockchain could play a crucial part in health insurance claims management by reducing the risk of insurance claim frauds.
- The technology can also be used to prevent the sale of spurious drugs in the country by tracking every step of the supply chain network.
- Artificial Intelligence and Internet of Things (IoT) can gain immensely from blockchain applications.
- In an IoT world, thousands of devices would need to rapidly and seamlessly transact with each other in real time.
- The adoption of blockchain by India's banks could help avert frauds such as the one at Punjab National Bank as the technology updates information across all users simultaneously.
- It could be used to further strengthen our national institutions, including the judiciary and the Election Commission.
- Critical citizen information like land records, census data, birth and death records, business licenses, criminal records, intellectual property registry, electoral rolls could all be maintained as blockchain-powered, tamper-proof public ledgers.

Challenges:

- Blockchain technology is expensive to initially put it in place.



- The massive usage of energy for the functioning of blockchain.
- Safeguarding the privacy of individuals and companies as blockchains are usually open ledgers for everyone to see.
- Knowledge of the benefits of distributed ledger technology is still limited.
- If automated risk management, smart contracts, and similar tools are deployed across a network, cascades of rapid and hard-to-control obligations and liquidity flows could propagate across a network.
- This interdependence will likely call for creative organizational thinking to address the need for governance and strong risk management

Blockchain in Social sectors:

- **Personal Identification:** Governments manage vast amounts of personal data from birth and death records to marriage certificates, passports and census data. Blockchain technology offers a streamlined solution for managing all of it securely.
- **Fight corruption:** Registering government transactions in the blockchain helps create a trusted history for any transaction and significantly eases the auditing process. This would contribute to making public procurement more transparent
- **Cut redtapism:** As government agencies currently store data in autonomous centralized databases, they tend not to interoperate in an optimal way. This results in duplication, overlap and contradiction in the information held. Blockchain eliminates this lack of interoperability which generates unnecessary red tape in obtaining relevant information from a user, and makes the process for sharing data between agencies clear and inexpensive.
- **Identity and Land rights:** The World Identity Network and Humanized Internet project can store identifiers such as birth certificates and university degrees on a blockchain, in the form of distributed digital lockboxes. Users can keep their information private and secure, but also give permission for anyone to access it anywhere in the world. Several governments, including those in Dubai, Estonia, Georgia, and Sweden are making early forays into blockchain-based approaches to securing property rights.
- **Agriculture:** First of all, it can reduce contamination and food fraud. This can happen with the help of blockchain efficiency and transparency. Blockchain's role is to improve the third party involvement by ensuring that they are tracking, collecting and managing data in the best possible way. With blockchain, farmers and distributors are going to get their payments faster than ever-improving their ability to work on their next set of projects faster.
- **Health:** The health sector is one of those sectors that have tons of initiatives by both for-profit and non-profit organizations. With blockchain, healthcare can improve digital healthcare records. It also improves pharmaceutical supply chain management. As usual, blockchain offers a decentralized, efficient and secure solution.
- **Governance and democracy:** Government and civil society can also leverage blockchain technology to strengthen democratic processes and participation. Blockchain systems such as Ballotchain can manage online elections with secure and anonymous voting that participants can verify at any time.
- **Environmental protection:** In the environmental arena, new blockchain-supported supply chain management systems, which are transparent but cannot be tampered with, can track products from the farm to the table, and show whether or not a food product is organic or Fair Trade.
- **Philanthropy and Aid:** Billions of dollars are invested in helping the needy. However, these aids are mostly misused due to a lack of transparency. In fact, most of the aid never reaches the intended people. This has also led people to not contribute to these non-profit organizations.



Blockchain can solve all of these problems and help elevate the confidence in non-profit in utilizing the funds.

- **Crowdfunding:** As with traditional crowdfunding, a blockchain powered crowdfunding campaign seeks to secure investment for a new project from an interested community. But in this instance, funding is most likely to come in the form of bitcoin or other cryptocurrencies.

Way Forward:

- Blockchain, with all its possibilities, needs a serious look at its vulnerabilities and commerciality.
- Before introducing blockchain into the public sector data-handling system, we need a robust and informative data repository.
- Linking **IndiaChain** with Aadhar, thus creating a secure personal identity for all Indians.
- Proper regulations for the use of blockchain technology in the country.
- Identifying and resolving key issues and challenges in implementing this technology, the prime amongst those being data privacy.
- India should effectively channel its technical human capital surplus to position itself as one of the pioneers during this upcoming wave of innovation.

Regardless of the 'Make in India' initiative being a well-wished-for policy, it suffers from key limitations. Deliberate. (250 words)

The Hindu

Why this question:

The article examines critically the performance of "Make in India". Thus the question.

Key demand of the question:

Discuss in detail the objectives of the Make in India, explain the limitations and take hints from the article.

Directive:

Deliberate – Weigh up to what extent something is true. Persuade the reader of your argument by citing relevant research but also remember to point out any flaws and counter-arguments as well. Conclude by stating clearly how far you agree with the original proposition.

Structure of the answer:

Introduction:

Define the details of the scheme.

Body:

The 'Make in India' initiative is to encourage manufacturing in India and galvanize the economy with dedicated investments in manufacturing and services.

Explain the progress made so far.

Discuss the setbacks that the scheme has witnessed, explain the challenges.

Take hints from the article and explain the issues involved and suggest what reforms need to be brought out to address the challenges.

Conclusion:

Conclude that the lacunas need to be addressed to ensure viability of the scheme and attain success for the program for a long term period.

Introduction:

The Indian government announced the 'Make in India' initiative in 2014 to encourage manufacturing in India and galvanize the economy with dedicated investments in manufacturing and services. Immediately after the launch, investment commitments worth crores were announced. In 2015,



India emerged as the top destination for foreign direct investment, surpassing the U.S. and China. In line with the national programme, States too launched their own initiatives.

Body:

Make in India:

- The three major objectives were:
 - to increase the manufacturing sector's growth rate to 12-14% per annum in order to increase the sector's share in the economy;
 - to create 100 million additional manufacturing jobs in the economy by 2022; and
 - to ensure that the manufacturing sector's contribution to GDP is increased to 25% by 2022 (revised to 2025) from the current 16%.
- The policy approach was to create a conducive environment for investments, develop modern and efficient infrastructure, and open up new sectors for foreign capital.
- The focus of Make in India programme is on 25 sectors. These include: automobiles, aviation, chemicals, IT & BPM, pharmaceuticals, construction, defence manufacturing, electrical machinery, food processing, textiles and garments, ports, leather, media and entertainment, wellness, mining, tourism and hospitality, railways, automobile components, renewable energy, biotechnology, space, thermal power, roads and highways and electronics systems.

Appraisal of Make in India after 5 years:

- **Investment:**
 - The last five years witnessed slow growth of investment in the economy.
 - Gross fixed capital formation of the private sector, a measure of aggregate investment, declined to 28.6% of GDP in 2017-18 from 31.3% in 2013-14 (Economic Survey 2018-19).
 - Interestingly, though the public sector's share remained more or less the same during this period, the private sector's share declined from 24.2% to 21.5%.
 - Part of this problem can be attributed to the decline in the savings rate in the economy. Household savings have declined, while the private corporate sector's savings have increased.
 - Thus we find a scenario where the private sector's savings have increased, but investments have decreased, despite policy measures to provide a good investment climate.
- **Output Growth:**
 - The monthly index of industrial production pertaining to manufacturing has registered double-digit growth rates only on two occasions during the period April 2012 to November 2019.
 - In fact, data show that for a majority of the months, it was 3% or below and even negative for some months. Thus, negative growth implies contraction of the sector.
- **Employment Growth:**
 - Employment, especially industrial employment, has not grown to keep pace with the rate of new entries into the labour market

Reasons for slow growth in Make in India:



- **Ambitious targets:** It set out too ambitious growth rates for the manufacturing sector to achieve. An annual growth rate of 12-14% is well beyond the capacity of the industrial sector.
- **Multiple targets:** The initiative brought in too many sectors into its fold. This led to a loss of policy focus. Further, it was seen as a policy devoid of any understanding of the comparative advantages of the domestic economy.
- **Excessive dependence on foreign capital:** The policy relied too much on foreign capital for investment. Thus in the uncertainties of the global economy and ever-rising trade protectionism, the initiative was spectacularly ill-timed.
- **Low Productivity:** Productivity of Indian factories is low and workers have insufficient skills. McKinsey report states that Indian workers in the manufacturing sector are, on average, almost four and five times less productive than their counterparts in Thailand and China.
- **Complex Labour Laws:** One of the major reasons behind small companies is the complicated labour regulations for plants with more than 100 employees. Government approval is required under the Industrial Disputes Act of 1947 before laying off any employees and the Contract Labour Act of 1970 requires government and employee approval for simple changes in an employee's job description or duties.

Conclusion:

Make in India and reforms that followed have led to an improvement in 'Ease of Doing Business' ranking. However, investments are yet to arrive. The 'Make in India' programme may have the potential to transform India into a manufacturing hub but if we are to achieve that potential, the government would have to move beyond rhetoric to actual implementation of the announced policies.

Explain the key features of National Biotechnology Development Strategy 2015-2020 (NBDS) also discuss How can Biotechnology be used to address various issues in India? (250 words)

[PIB](#)

Why this question:

The question is straightforward and aims to evaluate the objectives of the National Biotechnology Development Strategy 2015-2020 (NBDS).

Key demand of the question:

Discuss the key features of the policy and its significance to the overall development of the Biotech sector in the country; also explain the applications it offers to the other sectors.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Briefly highlight the fact that Indian Government seeks to create a US\$ 100 billion biotech industry by 2025. It has launched various programs with a view to harness available human and unlimited biodiversity resources.

Body:

Discuss the objectives of the strategy in detail first.

The Strategy aims to establish India as a world-class bio-manufacturing hub. It intends to launch a major mission, backed with significant investments, for the creation of new biotech products, creates a strong infrastructure for R&D and commercialization, and empowers India's human resources scientifically and technologically.



Explain the possible benefits it would bring to other sectors of the country.

Conclusion:

Conclude with way forward and prospects of the sector in coming future.

Introduction:

United Nation Convention on Biological Diversity, defines Biotechnology “any technological application that uses biological systems, living organisms or derivatives thereof, to make or modify products or processes for specific use”. And “Biological resources” includes genetic resources, organisms or parts thereof, populations, or any other biotic component of ecosystems with actual or potential use or value for humanity. India has become the world’s 12th biggest biotechnology economy having the second highest number of USFDA-approved plants. Biotechnology will help developing countries accomplish things that they could never do.

Body:

The National Biotechnology Development Strategy -2015-2020 aims to establish India as a world-class bio-manufacturing hub. It intends to launch a major mission, backed with significant investments, for the creation of new biotech products, create a strong infrastructure for R&D and commercialization, and empower India’s human resources scientifically and technologically.

The Key elements of the Strategy are:

- Building a Skilled Workforce and Leadership
- Revitalizing the knowledge environment at par with the growing bio-economy
- Enhance Research opportunities in basic, disciplinary and inter-disciplinary sciences
- Encourage use-inspired discovery research
- Focus on biotechnology tools for inclusive development
- Nurturing innovation, translational capacity and entrepreneurship
- Ensuring a transparent, efficient and globally best Regulatory system and communication strategy
- Biotechnology cooperation- Fostering global and national alliances
- Strengthen Institutional Capacity with redesigned governance models
- Create a matrix of measurement of processes as well as outcome

Biotechnology has the following relevance in India:

▪ **Applications of Biotechnology in Medicine**

- Biotechnology techniques are used in medicine for diagnosis and treating different diseases. It gives opportunities for the people to protect themselves from dangerous diseases.
- The field of Biotechnology, genetic engineering has introduced techniques **like gene therapy, recombinant DNA technology and polymerase chain reaction** which use genes and DNA molecules to diagnose diseases and insert new and healthy genes in the body which replace the damaged cells
- Genetic modification in mosquitoes can solve the problems of epidemic diseases such as dengue and malaria



- Artificial insemination is the artificial introduction of semen into the reproductive tract of a female animal. It is used extensively in breeding animals, such as sheep and cattle
 - Medical researchers believe that stem cell therapy has the potential to dramatically change the treatment of human disease. A number of adult stem cell therapies already exist, particularly bone marrow transplants that are used to treat leukaemia.
 - Stem cell transplantation was first used in the treatment of blood disorders and it was a breakthrough. Conventionally known as bone marrow transplantation, the stem cells responsible for production of the blood cells reside in the bone marrow
- **Applications of Biotechnology in Agriculture**
- Biotechnology has played major role in agriculture by altering genes, studying and cloning various crops in order to provide better quality products of foods ultimately improving our lives.
 - Hybrid Seeds, Artificial Seeds, Photosynthesis improver, Stress resistant crops and plants, Bio-fertilisers, Bio-pesticides are some of the potential applications.
 - Potential advantages that biotechnology can confer across a wide range of agricultural applications are in areas such as livestock management, storage of agricultural products and sustaining current crop yields, while reducing the use of fertilizers, herbicides and pesticides.
 - Biotechnology offers a very promising alternative to synthetic foods and an improvement on conventional plant-breeding technologies. Combined with other advanced agricultural technologies, it offers an exciting and environmentally responsible way to meet consumer demand for sustainable agriculture.
- **Animal husbandry:**
- The application of biotechnology in this area, in increasing production efficiency through manipulation and control of physiological systems and improving the health and well-being of animals, assumes great significance.
 - Embryo transplantation, used with cattle, goats, pigs, and sheep, aims to increase the number of offspring from a quality female.
 - Cloning embryos to artificially produce genetic duplicates of an animal has also become possible.
 - Direct manipulation and alteration of an animal's genetic material— genetic engineering—has the potential to produce even more drastic changes in animal breeding. It is believed that genetically altered pigs may one day be able to provide compatible organs for emergency transplantation (xenotransplantation) into humans.
- **Application of Biotechnology in Food Processing**
- Biotechnology has a major application in the food sector.
 - Bread, cheese, wine, beer, yogurt, and vinegar are all made by culturing microorganisms and are really the oldest products of biotechnology.



- It helps in improving the edibility, texture, and storage of the food; in preventing the attack of the food, mainly dairy, by the virus like bacteriophage.
 - Biotechnologists are also developing tests that will allow the detection of food-contaminating microorganisms and the toxins they produce, which may be present only in minute quantities.
 - Biotechnology also has applications in the detection of mutagens (substances that cause genetic mutations) in individual food products.
 - GM crops which have been approved for use in food items in select countries include corn, maize, soya, tomato, potato and papaya.
 - Latest innovations in biotechnology that fortify major staples with micro nutrients like vitamin A, zinc and iron can be game changers for hunger problem in India.
- **Environment:**
- Biotechnology can be used to tackle environmental issues like deforestation and air pollution
 - Biotechnology can help in finding out the level of Particulate Matter 2.5 in the air,
 - Biotechnology is already providing a clean and renewable alternative to traditional fossil fuels, the burning of which contributes to global warming.
 - The benefit of environmental biotechnology helps us to avoid the use of hazardous pollutants and wastes that affect the natural resources and the environment.
 - Biosensors, which combine a biological component (such as an enzyme) with various electronic components to trigger a circuit when a particular type of chemical is detected. Biosensors are capable of detecting extremely low levels of proteins, hormones, pollutants, gases, and other molecules.

Conclusion:

In a complex play of scientific progress and market forces, the biotechnology industry is recording growth that can rival the information technology industry boom of the 1990s. India with its young workforce and a potential market for the end-products can look out for a bright future in the biotechnology sector.

Briefly elucidate upon the steps taken by India for strengthening IPR focused on technology and innovation (250 words)

DIPP

Why this question:

Recently the Union Cabinet approved the proposal for Accession of India to the Nice, Vienna and Locarno Agreements, related to the World Intellectual Property Organization's (WIPO) international classification systems. Thus the context of the question.

Key demand of the question:

Discuss in detail the steps taken by India to strengthen the IPR that focuses on technology and innovation.

Directive:



Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In short discuss what Intellectual Property is.

Body:

First briefly present the IPR scenario in India.

Then explain the efforts being made – In order to promote Intellectual Property in India Department of Industrial Policy and Promotion has taken various initiatives to ensure that intangible assets of the country are adequately protected such as: National IPR Policy 2016, Cell for IPR Promotion and Management (CIPAM), and other various awareness programmes, Filing of Patents and Trademarks applications has been made online. Almost all old Intellectual Property (IP) records have been digitized and new records are digitized immediately. Automated Electronic modules have been adopted to process Patents and Trademarks applications which enabled achieving enhanced speed, accuracy and Transparency etc.

Conclusion:

Conclude with way forward.

Introduction:

Intellectual Property Rights (IPRs) are legal rights, which result from intellectual invention, innovation and discovery in the industrial, scientific, literary and artistic fields. These rights entitle an individual or group to the moral and economic rights of creators in their creation. For ex: In India, **patents are granted for a period of 20 years** from the date of filing of the patent application. It is also to be noted that the patents are valid only within the territory where they have been granted. Once a patent expires, protection ends and the invention enters the public domain. In India, **Patent Acts, 1970** regulate the IPRs.

Body:

Important highlights from India's present National Intellectual Property Rights (IPR) Policy

- The Policy aims to push IPRs as a **marketable financial asset**, promote innovation and entrepreneurship, while protecting public interest.
- In order to have strong and effective IPR laws, steps would be taken — including review of existing IP laws — to update and improve them or to remove anomalies and inconsistencies.
- The policy is **entirely compliant with the WTO's agreement on TRIPS**.
- **Special thrust on awareness generation and effective enforcement of IPRs**, besides encouragement of IP commercialisation through various incentives.
- India will engage constructively in the negotiation of international treaties and agreements in consultation with stakeholders
- The government will examine accession to some multilateral treaties which are in India's interest, and become a signatory to those treaties which India has de facto implemented to enable it to participate in their decision making process, the policy said.
- It suggests making the department of industrial policy and promotion (DIPP) the nodal agency for all IPR issues. Copyrights related issues will also come under DIPP's ambit from that of the Human Resource Development (HRD) Ministry.
- Films, music, industrial drawings will be all covered by copyright.



- The Policy also seeks to **facilitate domestic IPR filings**, for the entire value chain from IPR generation to commercialization. It aims to promote research and development through tax benefits.

The steps taken by India for strengthening IPR:

- The statutes governing different kinds of IPRs in India are **Patents Act, 1970; Trade Marks Act, 1999; Designs Act, 2000; Geographical Indications of Goods (Registration and Protection) Act, 1999; Copyright Act, 1957; Protection of Plant Varieties and Farmers' Rights Act, 2001; Semiconductor Integrated Circuits Layout-Design Act, 2000 and Biological Diversity Act, 2002.**
- The **Department of Industrial Policy and Promotion (DIPP)** is entrusted with matters concerning the specialised UN agency on IPRs, the World Intellectual Property Organisation (WIPO), including coordination with other concerned Ministries or Departments.
- The **Controller General of Patents, Designs and Trade Marks (CGPDTM)** under the Department of Industrial Policy and Promotion, Ministry of Commerce and Industry is entrusted with the responsibility of administering the laws relating to Patents, Designs, Trade Marks and Geographical Indications within the territory of India.
- The **Protection of Plant Varieties and Farmers' Rights Act, 2001** is a sui generis legislation in India providing protection for plant varieties and rights of farmers and is under the aegis of the Ministry of Agriculture.
- The preservation of biological diversity in India is under the Ministry of Environment and Forests; the **Biological Diversity Act 2002** provides mechanism for regulating access and ensuring fair and equitable sharing of benefits arising out of the use of biological resources and associated traditional knowledge.
- India has always been conscious of its obligations in the international arena, and has acceded to a number of international conventions to further the cause of IPRs globally.
- India was the first country to ratify the **Marrakesh Treaty 2013 for Access to Published Works by visually impaired persons.**
- The accession to the **Madrid Protocol in 2013** is a step towards global alignment for proprietors of marks.
- The **Indian Patent Office** has been recognized as an **International Search Authority** and an **International Preliminary Examination Authority.**
- The **Intellectual Property Appellate Board** hears appeals arising from the decisions of Controllers of Patents as also Registrars of Trade Marks and GIs.

Way forward:

- Fostering an environment where innovation flourishes and a knowledge economy is built, is the key idea. Hence, the policy should have a balance.
- It should encourage patenting and at the same time ensure that patentability of a product/process does not deter further innovation and progress.
- Intellectual Property must not be about patents on paper but dearth of application in reality. T
- The organisations such as CSIR and others must be encouraged to work upon socially useful applications of their patents.
- Support for innovation has to be accompanied with instruments that guard local companies against the misuse of market power, coercive bargaining and aggressive acquisition strategies.
- India needs to spread awareness on IPR in public and for its traditional industries to enable fair monetisation of IP Rights.



- It needs to safeguard its patents, copyrights and traditional knowledge by ensuring easy IPR rules.

The development of the anti-satellite (A-SAT) missile capability clenches vast implications for India. Explain and also discuss the associated concerns with the Mission Shakti. (250 words)

Reference: [The Hindu](#)

Why this question:

India showcased its anti-satellite (A-SAT) missile capability of the weapon, Mission Shakti, during the parade. Thus the context of the question.

Key demand of the question:

Discuss in detail the significance of development of the anti-satellite (A-SAT) missile capability for India; discuss the details of Mission Shakti and the challenges involved.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

First discuss what an anti-satellite (A-SAT) missile is.

Body:

Discuss the details of the missile technology; it has been developed by the Defence Research and Development Organization (DRDO).

The A-SAT technology enables India to destroy an enemy satellite by directly colliding with it with pinpoint accuracy.

A-SAT weapons play a critical role in providing the necessary strategic deterrence.

Discuss the prospects it will have for India's defence capabilities.

Explain the challenges involved in Mission Shakti in detail.

Conclusion:

Conclude with importance of such missions to India's defence capabilities.

Introduction:

India recently showcased its Anti-Satellite (ASAT) missile capability to the world as the ASAT weapon, Mission Shakti, developed by the Defence Research and Development Organisation (DRDO) rolled out on the Rajpath during the 71st Republic Day parade. In addition, the IAF's newest inductions, Chinook heavy lift helicopters and Apache attack helicopters, also made their debut during the flypast.

Body:

Anti-satellite (A-SAT) missile:

- ASAT is essentially a missile that can destroy or jam an enemy country's satellite in space. Until now, only USA, Russia and China had operational ASAT systems.
- ASAT are space weapons designed to incapacitate or destroy satellites for strategic military purposes.
- Space weapons can attack space weapons in orbit (ASAT), attack targets on the earth from space or disable missiles travelling through space.



- ASAT missiles are of two types – Kinetic or Non-Kinetic.
- Kinetic A-SAT physically strikes an object and destroys it like ballistic missile.
- Non-Kinetic A-SAT use non-physical means to disable/destroy a space object like frequency jamming.
- The theoretical range of A-SAT weapons is limited to 20,000km.
- The capabilities of ASAT have been demonstrated by United States, Russia, China and India.
- Israel is said to be on the path of developing its ASAT technology.

The significance of development of the anti-satellite (A-SAT) missile capability for India:

- The A-SAT technology enables India to destroy an enemy satellite by directly colliding with it with pinpoint accuracy.
- A-SAT weapons play a critical role in providing the necessary strategic deterrence.
- Provide critical information like troop movements and incoming missiles.
- India became the fourth nation in the world to test an ASAT weapon after US, Russia and China.

Mission Shakti:

The mission of shooting down a live satellite by an anti-satellite missile (A-SAT) targeted in the low earth orbit (LEO) in 2019 by India is known as Mission Shakti.

- Mission Shakti is a joint programme of the Defence Research and Development Organisation (DRDO) and the Indian Space Research Organisation (ISRO).
- India had announced in 2010 to develop a hit-to-kill A-SAT system, was fully successful and achieved all parameters as per plans.
- The target destroyed by DRDO's Ballistic Missile Defence interceptor (A-SAT missile) was an out of service Indian micro satellite launched by Indian Space Research Organisation (ISRO) in 2014.
- The anti-satellite missile test was conducted in the lower atmosphere to make sure that there is no space debris. Whatever wreckage is generated will decompose and fall back in the earth within weeks.



Significance of Mission Shakti:

- Satellites are used by countries for navigation, communications and also for guiding their missile weaponry.
- The ability to bring down an enemy's missile, therefore, gives a country the capability to cripple critical infrastructure of the other country, rendering their weapons useless.
- Though the United States and the then Soviet Union both tested anti-satellite missiles way back in the 1970s at the height of the cold war, never has any country brought down the satellite of any other country, either during a conflict or by mistake.
- During the tests, countries target their own satellites, those which are no longer in use but continue to be in the space.
- A detailed statement by the Ministry of External Affairs (MEA) confirmed that an Indian satellite had been used for the test, but did not specify which satellite it was.
- PM Modi was careful to state that India's test was a "defensive" move, aimed at securing its space infrastructure, and does not change India's strong opposition to weaponisation of space.

Associated concerns with the Mission Shakti:

- Since nations use third-party satellites for their various needs, even striking down every satellite of a nation might not disable military communication of that nation entirely because that nation will simply use another nation's satellite to communicate.
- As all major nations have hundreds of dual-use satellites in orbit, it is near to impossible for any nation to stick down these satellites by such missiles.



- Also, if the situation comes when nations are striking down the satellites of adversary nations then the world has already reached the nuclear threshold.

Conclusion:

The successful development of ASAT technology has improved India's space power. It has demonstrated its capability to intercept any satellite. So, it has created a deterrence mechanism for its space satellites which are doing various military and civilian services.



Awareness in the fields of IT, Space, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.

Discuss the technological and financial challenges that India has to overcome in the translation of the successes in the unmanned space missions into manned space missions.(250 words)

[The Hindu](#)

Why this question:

Four pilots from the Indian Air Force (IAF) will leave for Russia this month to receive training as astronauts of Gaganyaan, the first Indian crewed flight to space. Thus the context of the question.

Key demand of the question:

The question expects one to discuss the challenges that India space research organization is facing in conducting the manned and unmanned space missions.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Give a brief introduction about India's successes in unmanned space missions such as Mars orbiter mission, PSLV, GSLV etc.

Body:

Explain about India's ambitious programme Gaganyaan.

Write about the needed indigenization policies and technological inventions in this regard.

Suggest suitable measures to increase the financial capacity, international agreements etc.

Conclusion:

Give a futuristic way forward for the same.

Introduction:

The Prime Minister of India in his Independence Day address announced that an Indian astronaut would go into space by 2022, when India celebrates her 75th year of Independence. In pursuance of this, Indian Space Research Organization (ISRO) plans to fly the first unmanned test mission ahead of its ambitious crewed Gaganyaan mission by the end of 2020, according to ISRO Chairman.

Body:

Mission Gaganyaan:

- India's first manned space flight Gaganyaan is expected to send three persons into the space for seven days and the spacecraft will be placed in a low earth orbit of 300-400 km.
- Two unmanned Gaganyaan missions will be undertaken prior to sending humans.
- The total programme is expected to be completed before 2022 with first unmanned flight within 30 months.
- The mission is estimated at 9000 crore.
- It would raise scientific and technological temper across the country and inspire youngsters.
- When it achieves the mission, India would be the fourth nation to circle Earth after the Soviets, the Americans and the Chinese.

Technological challenges:



- For a manned mission, the key distinguishing capabilities that ISRO has had to develop include the ability
 - to bring the spacecraft back to Earth after flight
 - to build a spacecraft in which astronauts can live in Earth-like conditions in space
- India is yet to perfect fool-proof launch vehicle technology, the basic requirement for a manned space mission.
- The Polar Satellite launch vehicle and the Geosynchronous Launch vehicle, the two Indian spacecraft deployed to launch satellites and modules into space, are yet to be man-rated.
- India does not even have the facilities to train astronauts.
- ISRO has not been able to put in place India's own Global Positioning System in spite of completing the NavIC due to dysfunctional atomic clocks in the satellites, rendering the fleet a dud.
- The launchpad at the Sriharikota spaceport, the Satish Dhawan Space Centre, will have to be enhanced for the human mission.
- While the launch vehicle, crew module, re-entry technology, crew escape system is in place, monitoring and tracking systems, Environmental Control & Life Support System (ELCSS), space suit and crew support systems are still in the developmental phase.
- Although scores of landers sent by Russia, the U.S. and the Chinese have explored moon's surface, so far, no other agency has landed in the southern hemisphere of moon. ISRO hopes to be still the first to do so.

Financial challenges:

- Gaganyaan, announced by the Prime Minister in August 2018, is the ₹10,000-crore Indian human space flight scheduled for 2022.
- The Chandrayaan-3 lander and rover are estimated at ₹250 crore and will go to moon on a propulsion model. The GSLV Mark III vehicle costs around ₹350 crore.
- Chandrayaan-2 mission cost nearly ₹1000 crore, an orbiter carried the lander and the rover to a lunar orbit.

Way forward:

- It is important to ensure engagements at political level to obtain long term commitment for India's human space flight missions
- Financial implications of a long-term human space-flight programme development should be assessed and the returns and benefits should be clearly articulated
- It is important to overcome the technological challenges to ensure a safe, successful manned space mission. International collaboration in this domain can help India ensure a robust technology for its HSF programme.
- Selection of Indians for astronauts will be an important step. Procedures and specifications for astronauts and a rigorous selection process is suggested.
- These developments will help ISRO in perfecting the cryogenic technology for sending up heavier and heavier payloads and will reduce India's dependency on other countries to launch heavier satellites.



Conservation, environmental pollution and degradation, environmental impact assessment

Climate change is bound to increase the risk of forest fires further and the case for vice-versa also holds true, with suitable case studied critically analyse the statement.(250 words)

[The Guardian](#)

Why this question:

The question is from the context of the 2019-20 bushfire crises that coincided with Australia's hottest year on record.

Key demand of the question:

Discuss the impact of forest fires frequently being witnessed in the world and in what way climate change has been at the centre of causes leading to such fires. Also explain the interlinkages between the two.

Directive:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgment.

Structure of the answer:

Introduction:

Discuss the incidence of recent forest fires witnessed in Australia.

Body:

Forest fires have a significant impact on global atmospheric emissions, with biomass burning contributing to the global budgets of greenhouse gases, like carbon dioxide.

Discuss the concept of forest fires, causes and consequences; both positives and negatives.

Explain then the effect of climate change upon the forest fires.

And the vice-versa impact of it.

Conclusion:

Conclude with suggestions as to what should be done to overcome the threats posed by forest fires.

Introduction:

Australia is fighting one of its worst bushfire seasons, fuelled by record-breaking temperatures and months of severe drought. Australia has declared a state of emergency for the state of New South Wales (NSW) along with a catastrophic fire warning.

Body:

Current scenario of Bushfire in Australia:

- Wildfires have affected more than **12 million hectares of land in Australia** and the tragedy of the bushfires is still unfolding.
- The wildfires have caused **large scale loss to life and property** leading to the displacement of many residents.
- The wildfires have **destroyed the native flora and fauna, killing thousands of wild animals**. Australia is home to many endangered and rare species.
- New South Wales has been the most severely hit, with more than 1.65m hectares razed, an area significantly larger than suburban Sydney.



- Tourism which constitutes a major source of revenue for Australia has been affected by the raging bushfires.

Climate change and Forest fires are interlinked:

- The link between rising greenhouse gas emissions and increased bushfire risk is complex but, according to major science agencies, clear.
- Climate change does not create bushfires but it can and does make them worse.
- A number of factors contribute to bushfire risk, including temperature, fuel load, dryness, wind speed and humidity.
- This year a **natural weather phenomenon known as the Indian Ocean Dipole** has meant a hot, dry spell across the country.
- But the overwhelming scientific consensus is that rising levels of CO₂ are warming the planet. And Australia has been getting hotter over recent decades and is expected to continue doing so.
- Australia recorded its hottest month in January 2019, its third-hottest July and its hottest October day in some areas, among other temperature records. That comes on top of a long period of drought.
- Scientists have long warned that this hotter, drier climate will contribute to fires becoming more frequent and more intense.
- The more extreme weather patterns and higher temperatures increase the risk of bushfires and allow them to spread faster and wider.
- Complex computer models have not found a consistent climate change signal linked to rising CO₂ in the decline in rain that has produced the current eastern Australian drought.

Measures to fight forest fires:

- There are four approaches to fighting forest fires.
- The first is what may be called technological, where helicopters or ground-based personnel spray fire retardant chemicals, or pump water to fight the blaze.
- The second is to contain the fire in compartments bordered by natural barriers such as streams, roads, ridges, and fire lines along hillsides or across plains. A fire line is a line through a forest which has been cleared of all vegetation.
- The third is to set a counter fire, so that when a fire is unapproachable for humans, a line is cleared of combustibles and manned.
- The fourth approach, which is the most practical and most widely used, is to have enough people with leafy green boughs to beat the fire out. This is practised in combination with fire lines and counter fires.

Conclusion:

As evidenced, the Great Barrier Reef “is dying”, the “world-heritage rain forests are burning”, giant kelp forests have disappeared, “numerous towns have run out of water or are about to, and now the vast continent is burning on a scale never before seen.

Increasing the total area of forests is vital for India to meet its Intended nationally determined contributions under the ambit of Paris agreement 2015. Discuss. (250 words)

[Indian Express](#)

Why this question:



India, as part of its contribution to the global fight against climate change, has committed itself to creating an “additional carbon sink of 2.5 to 3 billion tonnes of carbon dioxide equivalent” by 2030. Thus the question.

Key demand of the question:

Discuss in detail the means and ways through which India aims to achieve its climate change targets.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly bring out the highlights of the [State of Forest Report \(SFR\) 2019](#) relevant to the question.

Body:

Explain that while showing an increase in the carbon stock trapped in Indian forests in the last two years, the report also shows why it is going to be an uphill task for India in meeting one of its international obligations on climate change.

Discuss briefly relationship between the forests and carbon.

Explain the challenges that India is facing in meeting the targets.

Discuss why it is important for India to meet its INDC targets.

Elaborate on the efforts India is making in this direction.

Conclusion:

Conclude with what should be the way forward.

Introduction:

Forests, by absorbing carbon dioxide from the atmosphere for the process of photosynthesis, act as a natural sink of carbon. India, as part of its contribution to the global fight against climate change, has committed itself to creating an “additional carbon sink of 2.5 to 3 billion tonnes of carbon dioxide equivalent” by 2030. The India State of Forest Report (ISFR) 2019 has found an increase of 5,188 sq. km in total forest and tree cover in the country. Tree and forest cover together made up 24.56% (8,07,276 sq. km) of India’s area.

Body:

Importance of increasing forest cover in India:

- Maintenance of environmental stability through preservation and, where necessary, restoration of the ecological balance that has been adversely disturbed by serious depletion of the forests of the country.
- Checking soil erosion and denudation in the catchments areas of rivers, lakes, reservoirs in the “interest of soil and water conservation, for mitigating floods and droughts and for the retardation of siltation of reservoirs.
- Checking the extension of sand-dunes in the desert areas of Rajasthan and along the coastal tracts.
- Increasing substantially the forest/tree cover in the country through massive afforestation and social forestry programmes, especially on all denuded, degraded and unproductive lands.
- Meeting the requirements of fuel-wood, fodder, minor forest produce and small timber of the rural and tribal populations.
- Increasing the productivity of forests to meet essential national needs.
- Encouraging efficient utilisation of forest produce and maximising substitution of wood.



- Creating a massive people's movement with the involvement of women, for achieving these objectives and to minimise pressure on existing forests.
- Conserving the natural heritage of the country by preserving the remaining natural forests with the vast variety of flora and fauna, which represent the remarkable biological diversity and genetic resources of the country.
- Forests, by absorbing carbon dioxide from the atmosphere for the process of photosynthesis, act as a natural sink of carbon.
- Together with oceans, forests absorb nearly half of global annual carbon dioxide emissions.
- In fact, the carbon currently stored in the forests exceeds all the carbon emitted in the atmosphere since the start of the industrial age.
- An increase in the forest area is thus one of the most effective ways of reducing the emissions that accumulate in the atmosphere every year.

However, there are challenges:

- An assessment by the Forest Survey of India (FSI) last year had projected that, by 2030, the carbon stock in forests as well as tree cover was likely to reach 31.87 billion tonnes of carbon dioxide equivalent in the business as usual scenario.
- An additional 2.5 to 3 billion tonnes of sink, as India has promised to do, would mean taking the size of the sink close to 35 billion tonnes of carbon dioxide equivalent.
- Considering the rate of growth of the carbon sink in the last few years, that is quite a stiff target India has set for itself.
- In the last two years, the carbon sink has grown by just about 0.6%%.
- Even compared to 2005, the size of carbon sink has increased by barely 7.5%.
- To meet its NDC target, even with most optimistic estimates of carbon stock trapped in trees outside of forest areas, the sink has to grow by at least 15% to 20% over the next ten-year period.

Way forward:

- There are two key decisions to be made in this regard — selection of the baseline year, and addition of the contribution of the agriculture sector to carbon sink.
- The baseline year can impact the business-as-usual projections for 2030. BAU projections are obtained using policies that existed in the baseline year.
- Now, there has been a far greater effort in recent years to increase the country's forest cover.
- So a 2015 baseline would lead to a higher BAU estimate for 2030 compared to a 2005 baseline when less efforts were being made to add or regenerate forests.
- The FSI projections made last year used a 2015 baseline. If 2005 baseline is used, India's targets can be achieved relatively easily.
- India's emissions intensity target uses a 2005 baseline, so there is an argument that the forest target should also have the same baseline.
- But there is a strong demand for a 2015 baseline as well, so that it results in some concrete progress in adding new forest cover.
- When India announced its NDC in 2015, it did not mention the baseline year. It has to decide on it before it reconfirms its NDC targets ahead of the next climate change meeting in Glasgow towards the end of the year.
- At that time, India would also have to specify whether it wants to count the carbon sink in the agriculture sector in its target.



- The NDC specifically mentions that and “additional” 2.5 to 3 billion tonnes of carbon sink would be created through “additional forest and tree cover by 2030”, but Environment Ministry officials insist that tree cover outside forest areas must include agriculture as well.

How far do you think privatizing multi-use forest areas is a viable option to ensure contributions to commitments made to mitigate climate change? Critically examine in the backdrop of recently proposed Green Credit Scheme .(250 words)

The Hindu

Why this question:

The Forest Advisory Committee, an apex body tasked with adjudicating requests by the industry to raze forest land for commercial ends, has approved a scheme that could allow “forests” to be traded as a commodity. If implemented, it allows the Forest Department to outsource one of its responsibilities of reforestation to non-government agencies. Thus the question.

Key demand of the question:

Discuss in detail the pros and cons of privatizing multi-use forest areas in the country. Also highlight the opportunities and obstacles pointed out by the Green Credit Scheme.

Directive:

Critically examine – When asked to ‘Examine’, we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgment.

Structure of the answer:

Introduction:

First discuss basic statistics of the forest area available in the country and the quantum of area required by the Industries.

Body:

Discuss that the Green credit scheme allows “forests” to be traded as a commodity. It allows the Forest Department to outsource one of its responsibilities of reforestation to non-government agencies. Then move onto present the advantages and disadvantages of such a move.

Explain that such a scheme will encourage plantation by individuals outside the traditional forest area and will help in meeting international commitments such as sustainable development goals and nationally determined contributions.

Also explain that Forests are treated as a mere commodity without any social or ecological character and that could pose a major challenge in meeting the goals of the policy.

Conclusion:

Conclude that a balanced approach is the need of the hour.

Introduction

The Forest Advisory Committee, an apex body tasked with adjudicating requests by the industry to raze forest land for commercial ends, has approved a scheme that could allow “forests” to be traded as a commodity. If implemented, it allows the Forest Department to outsource one of its responsibilities of reforestation to non-government agencies.

The total forest cover of the country is 7,12,249 sq km which is **21.67% of the geographical area** of the country. The 2019 survey has found an increase of 5,188 sq km in total forest and tree cover in the country. The nation’s tree and forest cover has largely hovered from 21-25% and is short of the **National Forest Policy, 1988**, which envisages **33%** to be under such cover.

Body



- **Green Credit Scheme**

Forest Advisory Committee (FAC) has recently proposed to overhaul the compensatory afforestation process by introducing the Green Credit Scheme.

- It will allow agencies to identify appropriate non-forest land and begin growing plantations. These agencies could be private companies, village forest communities or NGOs.
- After three years the land would be eligible to be considered as compensatory forest land.
- An industry needing forest land could then approach the agency and pay it for parcels of such forested land.
- The participating agency will be free to trade its asset, that is plantation, in parcels, with project proponents who need forest land.

The **concept of privatizing** is thus introduced with this idea.

- **Privatizing of forest as a Viable Option**

Advantages

- The FAC believes that such a scheme will encourage plantation by individuals outside the traditional forest area.
- It will help in meeting international commitments such as sustainable development goals and nationally determined contributions.
- It will also help in solving various industries' complain that they find it hard to acquire appropriate non-forest land, which has to be contiguous to existing forest.
- The scheme will also supplement the **Green India Mission**, which is one of India's initiatives to combat climate change.
 - It aims to sequester 2.523 billion tonnes of carbon by 2020-30 and this involves adding 30 million hectares in addition to an existing forest.

However, it does not solve the core problems of afforestation or even compensatory afforestation.

Disadvantages

- It will allow the Forest Department to outsource one of its responsibilities of reforestation to non-government agencies. These agencies may not realize the ecological value of forest, nor have resources to manage them effectively.
- This could allow for "forests" to be traded as a commodity. It could lead to the privatization of multi-use forests into **monoculture plantations**, and even their destruction, along with loss of biodiversity and violation of land rights.
- If the economic value of these plantations becomes lucrative, it can pose a serious **threat to agricultural land**, by diverting the latter for plantations.
- If the company raising the plantation does not wish to trade, it can retain and harvest the plantation for timber, once ready. This goes against the rehabilitative



principle of compensatory afforestation which seeks to restore the ecological imbalance.

- The crisis of fragmentation of forests and the spike in **man-animal conflict** will augment.
- Plantations cannot replace biodiversity integral to natural forests.

Conclusion

The value of forests must be reimagined, pushing the policy discourse on nature beyond the narrow confines of profiteering. But if policy is to reflect this change in perspective, the apparatus of forest management must be made inclusive. The forest advisory committee, (the green credit scheme is its brainchild) must work in tandem with all stakeholders, including independent voices, so as not to miss the wood for the trees.

Gram Sabha-based forest governance is quintessential to sustain management and conservation of forests along with implementation of community forest resource rights under the Forest Right Act of the country. Elucidate.(250 words)

[Live Mint](#)

Why this question:

The article discusses in detail the role that Gram Sabhas have to play in managing and conserving forests in the country.

Key demand of the question:

Discuss in what way Gram Sabha-based forest governance is quintessential to sustain management and conservation of forests along with implementation of community forest resource rights under the Forest Right Act of the country.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Briefly highlight the importance of conserving our forests.

Body:

Discuss Role of Gram Sabhas in general.

Explain why they should be given importance in the governance of the forest areas.

More than 300 million people including tribals live in and around forest areas in India, depending on forests for their sustenance and livelihood. Ecological security is the prime objective of National Forest Policy, 1988, but forest-dwelling communities cannot be separated from forests.

Explain that Provisions of the Panchayats (Extension to Scheduled Areas) Act, 1996 and Forest Right Act, 2006 have gone further to empower gram Sabhas for the management of forest resources.

Take queues from the article and explain in detail the relevance.

Conclusion:

Conclude with way forward and reassert that The gram Sabha-based forest governance has to be implemented in a large way to maintain sustainability of forests and improve their quality.

Introduction:

There are more than 300 million people including tribals live in and around forest areas in India, depending on forests for their sustenance and livelihood. Ecological security is the prime objective of National Forest Policy, 1988, but forest-dwelling communities cannot be separated from forests.

**Body:****Laws that empower gram sabhas for the management of forest resources:**

- The 73rd Constitutional amendment act provided importance to such institutions for resource management.
- Provisions of the Panchayats (Extension to Scheduled Areas) Act, 1996
- Forest Right Act, 2006

Importance of Gram Sabha-based forest governance:

- India's Constitution places trust in village-level institutions for conservation of forest resources.
- Gram Sabha ensures that the locals have a direct say in matters related to them thus devolving power at the grass root level
- The involvement of communities in forest management was initiated in 1990 through joint forest management institutions—a government-driven programme which did not achieve the objective of involvement of people in decision-making for sustainable forest management.
- Tribals have been residing in the forest for years, so the local community best know how the area around them can be developed but sustainably
- Over one million hectares of forests are managed by gram sabhas in eight states—Maharashtra, Chhattisgarh, Odisha, Madhya Pradesh, Kerala, Andhra Pradesh, Telangana and Rajasthan.
- Their knowledge about traditional use of forest produce as medicines can be harnessed for the benefit of all.
- Gram sabhas can potentially administer governance of more than 34 million hectare of forests.
- By demanding for their forest rights they in effect act as a check on reckless deforestation in name of development
- The Union ministry of tribal affairs has taken the initiative to conduct research for the development of models of forest governance based on gram sabhas.

Challenges faced by Gram Sabhas:

- There are no guidelines with respect to the management of community forest resources by gram sabhas.
- There are examples when some gram sabhas have shown both authority and responsibility, including when mining projects in Odisha were stopped by the gram sabha to save forests and livelihood.
- the present system of so many committees for the natural resource management at village level, including Joint Forest Management Committee, Biological Diversity Management Committee, Watershed Management Committee, and Forest Right Committee, is creating confusion.
- The opinions and recommendations given by the Gram Sabha regarding the sustainable use of forest resources are side-lined by the government
- The tribal communities routinely face existential threat by losing onto their land to development projects

Way forward:

- The supremacy of the gram sabha must be maintained while preparing governance models under the umbrella of national and state government policies, regulations and judicial orders.
- The bureaucracy must share authority with gram sabhas and the state forest department must perform the regulatory and monitoring role.



- There is need to have one committee which can have separate sub-committees for the management of forests and biodiversity.
- The gram sabha can maintain three bank accounts—operating account for implementing government schemes, core account for revenue received through sale of forest produce, and biodiversity account for receiving money for allowing access benefit sharing of bio-resources utilized by industry.
- The gram sabha-based forest governance has to be implemented in a large way to maintain sustainability of forests and improve their quality, along with implementation of community forest resource rights under the Forest Right Act, 2006.

Explain why the crisis engulfing nature matters for business and the economies of the world countries? Analyse in the backdrop of recently released nature risk rising report by World Economic Forum (WEF). (250 words)

India Times

Why this question:

The World Economic Forum (WEF) released a report titled Nature Risk Rising, the first in the series of New Nature Economy (NNE) reports. Thus the question.

Key demand of the question:

Discuss in detail the findings of the report; discuss why nature matters to the economies and business of the world. Highlight their importance.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Start with the fact that The World Economic Forum is launching a series of New Nature Economy (NNE) reports in 2020, making the business and economic case for safeguarding nature.

Body:

Discuss the details of the report and its key findings – The series of reports is being developed under the umbrella of the Nature Action Agenda (NAA), a platform for committed actors to catalyze public-private momentum in the run-up to the UN Convention on Biological Diversity COP15 – in Kunming, China, in October 2020.

The report explains how nature-related risks matter to business and why they must be urgently mainstreamed into risk management strategies.

Key findings:

Around \$44 trillion of economic value generation – more than half of the world’s total GDP – is moderately or highly dependent on nature and its services and is therefore exposed to nature loss. Together, the three largest sectors that are highly dependent on nature generate close to \$8 trillion of gross value added (GVA): construction (\$4 trillion); agriculture (\$2.5 trillion); and food and beverages (\$1.4 trillion), the report says.

Conclusion:

Conclude with significance of the report.

Introduction:

The World Economic Forum (WEF) in collaboration with PwC released a report titled “Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy”. The report is the 1st in a series for the New Nature Economy(NNE). As per the report, global businesses are more than



dependent on nature with an estimated exposure of \$44 trillion which is half of world GDP (Gross Domestic Product).

Body:

Crisis engulfing nature matters for business and the economies of the world countries because:

- **Threat to plants & animals:**
 - 25% of the assessed plant & animal species are in threat due to human actions. Nearly a million species are to face extinction within decades. Human activities have severely altered 75% of land and 66% of marine environments too.
- **Nature dependent industries:**
 - Many countries are nature dependent industries. Among them, the 3 largest industries dependent on nature are Construction (\$ 4 trillion), agriculture (\$ 2.5 trillion) and food and beverages (\$ 1.4 trillion). Their combined value is twice the size of Germany's economy.
 - China, the EU (European Union) and the United States(US) have the highest absolute economic value in nature dependent industries generating \$2.7 trillion, \$2.4 trillion and \$2.1 trillion respectively.
- **Resources relied on by industries:**
 - 163 industry sectors have analysed that the GDP is highly dependent on nature and its services. Pollination, water quality and disease control are three examples of the services provided by an ecosystem.
 - Many industries rely on either the direct extraction of resources from forests & oceans or the provision of ecosystem services. Some of the examples include healthy soils, clean water, pollination and a stable climate.
 - Industries highly dependent on nature generate 15% of global GDP which is \$13 trillion, whereas moderately dependent industries generate 37% i.e., \$31 trillion.
 - Construction (USD 4 trillion), agriculture (USD 2.5 trillion) and food and beverages (USD 1.4 trillion) are the three largest industries that depend most on nature
- **Framework adoption:**
 - The WEF has already adopted a framework proposed by the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD) to identify, measure and manage climate risks which could be used to manage the nature risks.

Way forward:

- We have the power to change this.
- Humanity urgently needs to rethink its relationship with nature, in order to halt and reverse the alarming degradation of the natural world.
- Business leaders have a crucial role to play, by putting nature at the core of their processes and decision-making and systematically identifying, assessing, mitigating and disclosing nature-related risks to avoid severe consequences.
- Businesses can be part of the global movement to protect and restore nature.

Conclusion:

Nature loss matters for most businesses – through impacts on operations, supply chains, and markets. Despite an increasing focus on nature loss, there is still a limited understanding of why it matters to businesses and what the private sector can practically do about it. Thus, it is vital to



prioritize the protection of nature's assets and services within the broader global economic growth agenda.

Recently India achieved the complete phase out of one the most potent ozone depleting chemical – Hydrochlorofluorocarbon (HCFC)-141 b , discuss the impact of such a move.(250 words)

Reference: [Vikas Pedia](#)

Why this question:

India has successfully achieved the complete phase out of Hydrochlorofluorocarbon (HCFC)-141 b. Thus the question.

Key demand of the question:

Discuss in detail the positive impact of Phasing out of Ozone Depleting substances and also the challenges involved in doing so.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

India has successfully achieved the complete phase out of Hydrochlorofluorocarbon (HCFC)-141 b, which is a chemical used by foam manufacturing enterprises and one of the most potent ozone depleting chemical after Chlorofluorocarbons (CFCs) .(HCFC)-141 b is used mainly as a blowing agent in the production of rigid polyurethane (PU) foams.

Body:

Government of India through Ministry of Environment, Forest and Climate Change Brought out a notification through which the issuance of import license for HCFC-141b is prohibited from 1st January 2020 under Ozone Depleting Substances (Regulation and Control) Amendment Rules, 2019 issued under Environment (Protection) Act, 1986.

Nearly 50% of the consumption of ozone depleting chemical in the country was Attributable to HCFC-141b in the foam sector.

Discuss in detail the environmental benefits of the phase out; healing of the stratospheric ozone layer, aids climate change mitigation etc.

Explain the challenges involved in phasing out.

Conclusion:

Conclude with way forward.

Introduction:

The Ministry of Environment, Forest and Climate Change (MoEF&CC) notified that the issuance of import license for HCFC-141b is prohibited from 1st January 2020 under Ozone Depleting Substances (Regulation and Control) Amendment Rules, 2019. **Ozone Depleting Substances (Regulation and Control) Amendment Rules, 2019** have been issued under the **Environment (Protection) Act, 1986**. This step is among the first at this scale in **Article 5 (special status of developing countries)** parties under the **Montreal Protocol**.

Body:

HCFC- 141 b:

- It is a chemical used by foam manufacturers.
- It is used mainly as a blowing agent in the production of rigid polyurethane (PU) foams.



- It is one of the most potent ozone depleting chemical after Chlorofluorocarbons (CFCs).
- the foam manufacturing sector is a mix of large, medium and small enterprises having varying capacities, with the preponderance of Micro, Small, and Medium Enterprises (MSMEs).

Impacts of HCFCs on the environment:

- Hydrochlorofluorocarbons (HCFCs) are a large group of compounds, whose structure is very close to that of Chlorofluorocarbons (CFCs), but including one or more hydrogen atoms.
- As VOCs, they may be slightly involved in reactions to produce ozone, which can cause damage to plants and materials on a local scale.
- At a global level however, releases of HCFCs have serious environmental consequences. Although not as stable and therefore not so persistent in the atmosphere as CFCs, HBFCs or Halons, they can still end up in the higher atmosphere (stratosphere) where they can destroy the ozone layer, thus reducing the protection it offers the earth from the sun's harmful UV rays.
- HCFCs also contribute to Global Warming (through "the Greenhouse Effect"). Although the amounts emitted are relatively small, they have a powerful warming effect (a very high "Global Warming Potential").

Impact of phasing out of hydrochlorofluorocarbons (HCFC)-141 b:

- Nearly, 50% of the consumption of ozone depleting chemicals in the country was attributable to HCFC-141 b in the foam sector.
- India has now emerged as one among the few countries globally and a pioneer in some cases in the use of technologies, which are non-Ozone Depleting and have a low Global Warming Potential (GWP).
- The phase out of HCFC-141b from the country has twin environmental benefits, viz, **assisting the healing of the stratospheric ozone layer, and towards climate change mitigation due to transitioning of foam manufacturing enterprises** at this scale under HPMP to low global warming potential alternative technologies.

Conclusion:

India is one of the few countries that are pioneer in the use of non-Ozone Depleting technologies and have a low Global Warming Potential (GWP). The Ministry also adopted a structured approach to engage with foam manufacturing enterprises for providing technical and financial assistance in order to transition to non-ODS and low GWP technologies under the HCFC Phase-out Management Plan (HPMP).

The growing global stalemate over the climate crisis offers India the chance to focus upon the State and sub-State levels on developing its climate change action. Comment. (250 words)

Reference: [The Hindu](#)

Why this question:

The article discusses in detail the prevailing climate crisis the world countries are facing and as to what should be India's role in dealing with it by focusing upon State and Sub-State level planning and development.

Key demand of the question:

Discuss in detail the growing climate crisis in the world; explain what India should be doing to avoid the crisis in the coming future.

Directive:



Comment– here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

Explain with examples the ongoing climate crisis facing the world.

Body:

Discuss that the stalemate at the global level offers India the opportunity to focus earnestly on developing its climate change action at State and sub-State levels, where the environment and climate continue to be relegated to peripheral status.

Explain what will be the benefits of doing so – Attention to climate change offers co-benefits to India for development.

Elaborate upon the efforts being made by India.

Conclusion:

Conclude with what should be the way forward for India and efforts in this direction.

Introduction:

Global climate change has already had observable effects on the environment. Glaciers have shrunk, ice on rivers and lakes is breaking up earlier, plant and animal ranges have shifted and trees are flowering sooner.

Almost everyone agrees that the recent global climate summit, the annual Conference of the Parties (COP25), held in Madrid in December 2019, was a failure and that the multilateral process to address the climate crisis is broken. At several discussions on finance, ambition, transparency of support and pre-2020 action, wealthy countries were recalcitrant.

Body:

Ongoing climate crisis facing the world:

- Global warming above pre-industrial levels has touched about 1 degree Celsius.
- The IPCC 1.5 report basically says, at the current rates at which we are producing greenhouse gases, we are looking at a couple of decades really before what we have available is exhausted.
- At one level, for many people climate change has become an existential problem, a problem that risks undermining the conditions for productive life and therefore a problem that does not override but certainly permeates all kinds of other issues.
- For many others, climate change is a distant problem that is overwhelmed by more immediate issues.
- The rapid change of climate change is likely to exceed the ability of many species to migrate or adjust. Experts predict that one-fourth of Earth's species will be headed for extinction by 2050 if the warming trend continues at its current rate.
- Sea levels have risen between four and eight inches in the past 100 years. Current projections suggest that sea levels could continue to rise between 4 inches and 36 inches over the next 100 years.
- As temperatures rise globally, droughts will become more frequent and more severe, with potentially devastating consequences for agriculture, water supply and human health. This phenomenon has already been observed in some parts of Asia and Africa, where droughts have become longer and more intense.
- Hot temperatures and dry conditions also increase the likelihood of forest fires.

The stalemate at the global level offers India the opportunity to focus earnestly on developing its climate change:



- The stalemate at the global level offers India the opportunity to focus earnestly on developing its climate change action at State and sub-State levels, where the environment and climate continue to be relegated to peripheral status.
- Over decades, this has led to the destruction of ecosystems, forests, waterbodies and biodiversity.
- Numerous studies have shown the high economic and ecological costs and loss of lives due to extreme events.
- We do not need more data to stimulate action. As is also well recognised, India is extremely vulnerable to the effects of warming.
- With support from bilateral agencies, States initially took different approaches in the first round of State Action Plans on Climate Change (SAPCCs).
- Some of them set up separate climate change cells while some collaborated with academic institutions.
- A few produced detailed action plans while others developed strategy documents. Still others integrated improvements in energy efficiency (contributing to reducing emissions) while almost all focused on adaptation.
- Attention to climate change offers co-benefits to India for development. For instance:
- **Improving energy efficiency in industry reduces costs and local pollution;** improving public transport reduces congestion, pollution and improves access; and using natural farming methods reduces fossil fuel-based fertilizers, improves soil health and biodiversity.
- These show that there are synergies in the steps to be taken for good development and climate change. Emissions), while almost all focused on adaptation.
- As the next round of the SAPCCs are being drawn up, under recommendations from the Centre, the focus ought to be on integrating the response to climate change with the development plan in different departments.
- Since the States together are to deliver the Nationally Determined Contributions (NDCs) that India has promised, it means that they require guidance from the Centre.

Major initiatives of the Government towards combating climate change:

- **National Action Plan on Climate Change (NAPCC):** The Action plan covers eight major missions on Solar, Enhanced Energy Efficiency, Sustainable Habitat, and Water, Sustaining the Himalayan Ecosystem, Green India, Sustainable Agriculture and Strategic Knowledge on Climate Change.
- **International Solar Alliance (ISA):** ISA was jointly launched by the Prime Minister Narendra Modi, and the then President of France, Francois Hollande in Paris on the side-lines of CoP 21 in 2015. The vision and mission of the alliance is to provide a dedicated platform for cooperation among solar resource rich countries that lie completely or partial between the Tropics of Capricorn & Cancer.
- **State Action Plan on Climate Change (SAPCC):** State governments have drafted climate strategies aligned with the eight National Missions under the NAPCC. The strategies focus on issues ranging from climate mitigation, energy efficiency, and resource conservation to climate adaptation.
- **FAME Scheme for E-mobility:** Union Government in April 2015 launched Faster Adoption and Manufacturing of Hybrid and Electric vehicles (FAME) – India Scheme with an aim to boost sales of eco-friendly vehicles in the country. It is a part of the National Mission for Electric Mobility.
- **Atal Mission for Rejuvenation & Urban Transformation (AMRUT)** for Smart Cities.
- **Pradhan Mantri Ujjwala Yojana:** The scheme provides LPG connections to five crore below-poverty-line beneficiaries. The connections are given in the name of women beneficiaries to



reduce their dependence on fossil fuels and conventional fuel like cow dung for cooking food, thus reducing air pollution.

- **UJALA scheme:** The scheme was launched by the Prime Minister Narendra Modi in January 2015 with a target of replacing 77 crore incandescent lamps with LED bulbs. The usage of LED bulbs will not only result in reducing electricity bills but also help in environment protection.
- **Swachh Bharat Mission:** Swachh Bharat Abhiyan (Clean India Movement) is a campaign that was launched by Prime Minister Narendra Modi on October 2, 2014. The campaign seeks to clean the streets, roads and infrastructure of the country's 4041 statutory cities and towns.

On integration with states, districts and sub-district levels::

- Line departments for government schemes and programmes in key development sectors, such as agriculture, transport and water, should be identified for carefully integrating actions that respond to climate change.
- This integration should also take place at district and sub-district levels. But only a demonstration of its success in some departments would show how this can be done. But first and foremost, States need to get the signal that climate is an urgent issue.
- How funds for implementing SAPCCs will be obtained is not clear. There will not be enough from the Green Climate Fund, Adaptation Fund and bilateral agencies to support all States unless new sources are found.
- The coal cess in India is a good initiative, and as others have pointed out, could be used for environment and climate-related expenses. Similar alternative sources from high emissions' industries and practices would be an option, but still probably insufficient.
- There also needs to be a clear analysis of how the first round of action plans fared
- If States are to develop SAPCCs that would ultimately add up to India's NDCs, then the country needs reliable greenhouse gas inventories
- Individual research groups and the civil society initiative, GHG Platform India, have been producing such inventories and would be useful in synchronizing and coordinating State and Central mitigation programmes.

Conclusion:

States must also develop their programmes with longer timelines, with mid-course correction based on lessons and successes that can be integrated into the next stage of the plan. If the second round of SAPCCs were treated as an entry point to long-term development strategy, the States and the country would be better prepared for climate change. Ultimately, climate should be part and parcel of all thinking on development.

Discuss the importance and role played by Wetlands in the Ecological conservation of Earth. (250 words)

Reference: [The Hindu](#)

Why this question:

37 sites in the country have been freshly recognized under the international treaty of Ramsar Convention.

Key demand of the question:

Discuss in detail the importance and role played by Wetlands in the Ecological conservation of Earth.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.



Structure of the answer:

Introduction:

First discuss what wetlands are – Wetlands are defined as: “lands transitional between terrestrial and aquatic eco-systems where the water table is usually at or near the surface or the land is covered by shallow water”.

Body:

Discuss first the importance of wetlands to the ecosystem.

Wetlands are highly productive ecosystems that provide the world with nearly two-thirds of its fish harvest.

Wetlands play an integral role in the ecology of the watershed. The combination of shallow water, high levels of nutrients is ideal for the development of organisms that form the base of the food web and feed many species of fish, amphibians, shellfish and insects.

Wetlands’ microbes, plants and wildlife are part of global cycles for water, nitrogen and sulphur.

Wetlands store carbon within their plant communities and soil instead of releasing it to the atmosphere as carbon dioxide.

Wetlands function as natural barriers that trap and slowly release surface water, rain, snowmelt, groundwater and flood waters. Wetland vegetation also slow the speed of flood waters lowering flood heights and reduces soil erosion etc.

Discuss the importance of Ramsar convention. Explain the scenario in India.

Conclusion:

Conclude that along with such treaties, Spreading awareness by initiating awareness programs about the importance of wetlands and constant monitoring of wetlands for their water quality would provide vital inputs to safeguard the wetlands from further deterioration.

Introduction:

Wetlands are Ecotones between terrestrial and aquatic ecosystems. They get periodically get inundated with water. They support a flourishing community of aquatic organisms including frogs and other amphibians. Swamps, marshes and mangroves are examples of wetlands.

India has added 10 more wetlands to sites protected by the Ramsar Convention, With this, a total of 37 sites in the country have been recognized under the international treaty. Wetlands declared as Ramsar sites are protected under strict guidelines.

Body:

The importance of wetlands to the ecosystem:

- Wetlands play an integral role in the ecology of the watershed. The combination of shallow water, high levels of nutrients and primary productivity is ideal for the development of organisms that form the base of the food web and feed many species of fish, amphibians, shellfish and insects
- Wetlands are among the most productive ecosystems in the world, comparable to rain forests and coral reefs. An immense variety of species of microbes, plants, insects, amphibians, reptiles, birds, fish and mammals can be part of a wetland ecosystem.
- Wetlands are indispensable for the countless benefits or “ecosystem services” that they provide humanity, ranging from freshwater supply, food and building materials, and biodiversity, to flood control, groundwater recharge, and climate change mitigation.
- Wetlands are an important resource for sustainable tourism.
- They carry out water purification, filtration of sediments and nutrients from surface water.
- They help in nutrients recycling, groundwater recharging and stabilization of local climate.



- Buffer (act as a riparian buffer) shorelines against erosion and pollutants.
- They act as a genetic reservoir for various species of plants (especially rice).
- Wetlands function as natural sponges that trap and slowly release surface water, rain, snowmelt, groundwater and flood waters.

Role played by Wetlands in the Ecological conservation of Earth:

- **Flood attenuation:** many water-stressed regions in South Africa are subject to high intensity rainfall over very short periods, often resulting in flash floods. Wetlands are effective in spreading out and slowing down floodwaters, thereby reducing the severity of floods downstream.
- **Regulation of stream flow:** wetlands are often compared to sponges, in their ability to absorb water in wet periods, and release it during dry periods.
- **Sediment trapping:** wetlands reduce runoff velocity, and through their vegetation are effective in trapping and retaining sediment.
- **Phosphate and nitrate assimilation:** removal by the wetland of phosphates and nitrates carried by runoff water. This takes place through the presence of wetland vegetation and the action of anaerobic bacteria (which would otherwise not exist in fast-flowing, energised streams or rivers).
- **Erosion control:** wetlands can limit the extent of erosion, predominantly through the protection provided by vegetation, and through their ability to reduce stream flow velocity.
- **Maintenance of biodiversity:** through the provision of habitat and the maintenance of natural processes, wetlands contribute to supporting and maintaining biodiversity.

Ramsar convention

Ramsar convention is an international treaty for the conservation and wise use of wetlands. It is named after the Iranian city of Ramsar, on the Caspian Sea, where the treaty was signed on 2 February 1971. It is known officially as 'the Convention on Wetlands of International Importance especially as Waterfowl Habitat' (or, more recently, just 'the Convention on Wetlands'), it came into force in 1975.

Ramsar "Wise use concept" requires that wetlands' ecological character should be maintained within the framework of sustainable development. This concept recognizes that:

- Developmental activities are inevitable in wetland areas such as construction of roads, electricity infrastructure, schools and hospitals for poor families.
- Economic activities are also inevitable in wetland areas such as fisheries, farming and tourism.
- Such activities aid in human development and economic development in a wetland area.
- And for these activities, wetland's land, water and bio-resources will have to be used.
- However, these resources should not be used in a manner that wetland's ecological character is harmed.

Conclusion:

Wetland conservation is crucial for protecting biodiversity and mitigating the adverse impacts of climate change. At the same time, due to high level of poverty & population, it's not possible for developing countries & Least Developed Countries (LDCs) to keep wetlands in pristine conditions completely free from human activities



How to tackle the groundwater crisis in India especially keeping in view the demands of the farmer? Discuss. (250 words)

Reference: [Indian Express](#)

Why this question:

The article highlights the need to switch to newer approaches that are centric to farmers' demands and yet aid addressing the groundwater crisis.

Key demand of the question:

Discuss the rising issue of groundwater crisis in India and need to recognise the fact that farmers can be centric to approaches that can resolve the issue of groundwater crisis.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

First discuss key notable facts pointing at the crisis.

Body:

Discuss why there is a crisis in the groundwater in the country.

Establish the link existing between the groundwater crisis and agriculture; explain the role played by farmers.

Explain the factors responsible for the crisis and that agriculture is a major contributor and thus any approach that aims to address this issue must centre on agriculture with farmer as a key stakeholder.

Conclusion:

Conclude with solutions. Take hints from the articles and suggest way forward.

Introduction:

In 2020, according to the Niti Aayog, 21 Indian cities, including Delhi, Chennai and Bengaluru, will run out of groundwater. The Aayog's "**Composite Water Management Index**" (CWMI), released in June, notes that "Seventy per cent of our water resources are contaminated". Several other reports, including the Central Water Commission's "Water and Water Related Statistics 2019", have thrown light on the poor state of India's groundwater aquifers.

Body:

The groundwater crisis is embedded at two different levels:

- Groundwater exploitation of aquifers (where groundwater is stored) in different parts of the India and
- Groundwater contamination that find origins, both in geogenic source such as Arsenic and Fluoride along with anthropogenic sources of contamination primarily due to poor disposal of waste and wastewater.

Present Water Crisis

- Water levels in India's major reservoirs have fallen to 21 per cent of the average of the last decade.
- Fifty four per cent of the country's groundwater is declining faster than it is being replenished.
- There is a crippling dependence on monsoon rains to replenish most of India's key water sources– underground aquifers, lakes, rivers and reservoirs.
- Close to half the country, about 600 million people, face severe scarcity year after year.



- A June 2018 Niti Ayog report forecasts water demand will be twice the present supply and India could lose up to 6 per cent of its GDP.
- India's water table is falling in most parts; there is fluoride, arsenic, mercury, even uranium in our groundwater.
- The groundwater and sand extraction from most river beds and basins has turned unsustainable.
- Tanks and ponds are encroached upon.
- Dug-wells and borewells are constructed with alarming impunity to slide deeper and deeper to suck water from greater depths.
- Water is being diverted from food-crops to cash-crops; livelihoods to lifestyles; rural to urban—mismanagement is a bigger reason for the drought.
- Water shortages are hurting India's ability to produce power and 40% thermal power plants are in areas facing high water stress, a recent World Resources Institute report says
- Not only farmers, urban dwellers in cities and towns across India are also staring at a never seen before drinking water scarcity.
- Residents in the arid Thar desert of Rajasthan are spending Rs 2,500 to buy 2,500 litres of water which they share with their cattle.

Reasons for ground water exploitation in India:

- Groundwater is one of the most important water sources in India accounting for 63% of all irrigation water and over 80% of the rural and urban domestic water supplies.

Subsidies:

- Subsidies on electricity are thought to play a central role in the Indian groundwater crisis.
- The vast majority of groundwater pumps are unmetered, and if charged, are billed at a flat, non-volumetric, and highly subsidized tariff.

Water intensive crops:

- Government encourages farmers to produce water-intensive crops like rice and sugarcane through increased minimum support prices (MSP). This has also led to groundwater depletion, income inequality and unsustainable agriculture.
- Farmers are digging more and more borewells, but the sources of the problem are many, including transition to water-intensive crops and spate of construction activity along catchment areas.

Unpredictable monsoon:

- Successive droughts and erratic rainfall have led to excess extraction of groundwater. That explains 61 per cent decline in groundwater level in wells in India between 2007 and 2017.

Land use changes:

- India's huge groundwater-dependent population, uncertain climate-reliant recharge processes and indiscriminate land use changes with urbanization are among the many factors that have rendered the Indian groundwater scenario to become a global paradigm for water scarcity, for both quantity and quality.
- Trans-boundary upstream water sources and archaic irrigation methods for the water shortage.

Government failure:



- The government finance for well digging and pump installation with capital subsidies, massive rural electrification and pervasive energy subsidies all have enabled this process to aggravate.
- In the north western parts of India and southern peninsula, the early and rapid rural electrification, free or subsidised power to the farm sector, large productive farmers and attractive procurement prices for major cereals led to intensive use of groundwater.
- Zero marginal cost of pumping and lack of restriction on volume of water resulted in inefficient and unsustainable use of the resource.
- Lack of adequate planning, crumbling infrastructure, indiscriminate drilling of borewells, large-scale consumption of water, and a false sense of entitlement in using water carelessly are causing water shortages.

Steps needed to be taken in this regard:

- Jal Shakti Ministry has been incorporated to address the issue. It clubs Water Resources, River Development and Ganga Rejuvenation) and has promised that it would ensure potable, piped drinking water to every home by 2024.
- Serious crisis has been partly avoided as rabi crops have been harvested and kharif crops are yet to be sown.
- States are also taking the lead in this regard with various schemes like:
 - Mukhya Mantri Jal Swavlamban Abhiyan-Rajasthan
 - Jalyukt Shivar Abhiyan-Maharashtra
- Hiware Bazar, a village in the Ahmednagar District of Maharashtra, India is noted for its irrigation system and water conservation program, with which it has fought the drought and drinking water problems.
- Prime Minister has written to all Sarpanch in the country to undertake water conservation programme within their village.
- India has had a Groundwater Management and Regulation Scheme since 2013.
- The Atal Bhujal Yojana will draw on some of the institutions created by this scheme, especially village-level water user associations (WUAs).
- The Atal Bhujal Yojana would do well to follow the Niti Aayog's recommendations for strengthening the financial state of the WUAs, including allowing these bodies to retain a significant portion of irrigation fees.

Measures needed:

Reducing electricity subsidies:

- An analysis of panel data across 370 districts in India found that a reduction in electricity subsidy was correlated with a decrease in groundwater extraction.
- Most empirical studies are in favour of pricing electricity on the basis of actual consumption. They show that the energy prices at which the farmers start responding to tariff changes in terms of reducing the demand for water and electricity would be socio-economically viable.

Micro-irrigation:

- Encouraging farmers to adopt micro-irrigation techniques such as drip irrigation and micro-sprinklers.
- According to the CWMI report, adopting micro-irrigation techniques can save roughly 20% of the groundwater used annually on irrigation in India.

Creating awareness:

Telegram: <https://t.me/insightsIAStips>

Youtube: <https://www.youtube.com/channel/UCpoccbCX9GEIwaile4HLjwA>

Facebook: <https://www.facebook.com/insightsonindia>



- Creating sustainable change would require a bottom-up approach by empowering the local community to become active participants in managing groundwater.

Proper implementation of initiatives:

- 12th five-year plan proposed a policy of participatory groundwater management (PGM), which involves a collaborative approach among government departments, researchers, NGOs and community members.
- The plan involves training community workers to carry out aquifer mapping and implement innovative ways to use groundwater conservatively with the local community.
- Government has come up with a 6,000-crore World Bank-aided Atal Bhujal Yojana with community participation to ensure sustained groundwater management in overexploited and ground water-stressed areas in seven States.
- World Bank's Water Scarce Cities Initiative seeks to promote an integrated approach to managing water resources and service delivery in water-scarce cities as the basis for building resilience against climate change.
- India needs better policies that directly help small-holders and labourers to adapt and adjust to risks associated with groundwater depletion and a more variable future climate.
- Crisis can be tackled by restoring and enhancing groundwater recharge areas, stopping polluted water from recharging groundwater, rainwater and roof top harvesting and the restoration of ponds, lakes and other river systems.
- Growing less water-intensive crops in the dry season and transitioning away from irrigation-intensive systems where there is little water.
- Behavioural economics and other novel approaches can be brought to bear on maximizing agricultural production with minimal water use instead of focusing on marginal increases in yields with unbounded water use.
- Water-deficient states should promptly move towards micro-irrigation systems. These techniques have significantly higher efficiency vis-à-vis flood irrigation techniques.
- States should continue to focus on command area development (CAD). This is now part of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) which focuses on "more crop per drop".
- The cropping patterns in the states should be changed as per the agro-climatic zones. Improper cropping patterns affect both crop productivity and irrigation efficiency.
- Farmer producer organizations (FPO) provide a sense of ownership to farmers and encourage community-level involvement with lower transaction costs.
- India needs to establish data networks to track not only crop transpiration but also total inflows and recoverable outflows of irrigation water but also the losses to unrecoverable sinks such as evaporation.
- The CWMI report talks of other solutions like persuading farmers to adopt more efficient technologies such as drip irrigation.
- By emphasising on local-level institutions like the WUAs, the Atal Bhujal Yojana has signaled the Jal Shakti ministry's inclination towards such persuasive solutions.

Conclusion:

There is a need to modernise the regulatory framework for accessing groundwater soon after massive expansion in mechanical pumping led to the realisation that recharge could not keep pace with use.



Discuss the recently released enforcement and monitoring Guidelines for Sand Mining 2020. How far will the new guidelines help in Sustainable Sand Management?

Explain.(250 words)

Reference: [Indian Express](#)

Why this question:

Following a series of orders by the National Green Tribunal in 2018, the Ministry of Environment, Forests and Climate Change (MoEF) has for the first time released guidelines to monitor and check illegal sand mining in the country. Thus the question.

Key demand of the question:

Discuss in detail the new guidelines for sand mining and its significance; about illegal sand mining in India and government's efforts to curb it.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

First discuss the status of sand mining in the country, use data and quote facts.

Body:

Discuss briefly the background – The Mines and Minerals (Development and Regulation) Act, 1957 has empowered state governments to make rules to prevent illegal mining, transportation and storage of minerals.

But in the recent past, it has been observed that there were a large number of illegal mining cases in the country and in some cases, many of the officers lost their lives while executing their duties to curb illegal mining.

Illegal and uncontrolled illegal mining leads to loss of revenue to the State and degradation of the environment.

Discuss the aspects of Sustainable Sand Management.

Explain how these new rules would aid in Sustainable Sand Management of the country.

Conclusion:

Conclude with significance of such a move.

Introduction:

The Union Cabinet has approved the promulgation of Mineral Laws (Amendment) Ordinance 2020 that will amend the Mines and Minerals (Development and Regulation) Act 1957 and Coal Mines (Special Provisions) Act 2015.

Body:

Background:

- In 2018, the government had allowed commercial mining by private entities but non-coal companies couldn't participate in the auction.
- In August 2019, the government announced 100 per cent foreign direct investment (FDI) under the automatic route in coal mining for open sale, besides creating associated infrastructure, such as washeries.
- The Mines and Minerals (Development and Regulation) Act, 1957 has empowered state governments to make rules to prevent illegal mining, transportation and storage of minerals.



- But in the recent past, it has been observed that there were a large number of illegal mining cases in the country and in some cases, many of the officers lost their lives while executing their duties to curb illegal mining.
- Illegal and uncontrolled illegal mining leads to loss of revenue to the State and degradation of the environment.

Enforcement and monitoring Guidelines for Sand Mining 2020:

- The guidelines have basically laid down the uniform protocol to be followed by all states for monitoring and enforcement of rules. The gist of which is that enforcement of rules must continue even after the grant of green nod to the leaseholder through measures such as environment audit.
- **In case of river sand mining**, which is pertinent to Goa, the guidelines have stipulated that precautions must be taken that the water flows unhindered and the river meandering does not get affected.
- Furthermore, no river mining must be permitted in an area up to width of 100 meter from the active edge of the embankments or distance prescribed by the irrigation department.
- **To curb illegal sand mining, the recommendation is to use of technology through remote surveillance, drones, etc.**
- The states have been asked to monitor the movement of sand at different levels, for instance, at the time of sale and purchase at stockyards, and during transportation.
- The guidelines have said that sand transportation must be carried out with valid transport permits, and should be checked through an online monitoring system.
- **The guidelines have recommended special monitoring near state borders.**
- To identify illegal sand mining, the MOEF has suggested field visits, use of GPS instruments and satellite images to calculate the mined out area.
- The enforcement guidelines focus on *the “effective monitoring of sand mining from the identification of sand mineral sources to its dispatch and end-use by consumers and the general public and looks at a uniform protocol for the whole country”*
- **The 2020 guidelines are to be enforced simultaneously with the Sustainable Sand Management Guidelines, 2016**, but in instances where the two sets of guidelines may seem to be in conflict, the new set will hold legal precedence.
- In cases where rivers become district boundaries or state boundaries, the districts or states sharing the boundary shall constitute the combined task force for monitoring of mined materials, mining activity and participate in the preparation of **District Survey Reports (DSR) by providing appropriate inputs.**
- The guidelines say the detailed survey needs to be carried out for quantification of minerals and the demand and supply of the riverbed material through market survey, including the future demand for the next five years.
- It is suggested that the state government should develop an online portal for sale and purchase of sand and RBM. The state government will also decide the model of sale and the price of RBM.

These new rules would aid in Sustainable Sand Management of the country in following ways:-

- Identification and Quantification of Mineral Resource and its optimal utilization.
- To regulate the Sand & Gravel Mining in the Country since its identification to its final end-use by the consumers and the general public.
- Use of IT-enabled services & latest technologies for surveillance of the sand mining at each step.
- Reduction in demand & supply gaps.



- Setting up the procedure for replenishment study of Sand.
- Post Environmental Clearance Monitoring.
- Procedure for Environmental Audit.
- To control the instance of illegal mining.
- The guidelines also push for online sales and purchase of sand and other riverbed materials to make the process transparent

Procedure for Comprehensive DSRs:

- While the Sustainable Sand Mining Guidelines, 2016, require the preparation of District Survey Reports (DSR), which is an important initial step before grant of mining lease, the government has found that the DSRs carried out by state and district administrations are often not comprehensive enough, allowing space for illegal mining.
- The new guidelines, therefore, list a detailed procedure of how the DSRs are to be made, including the development of an inventory, for the first time, of river bed material and other sand sources in the district.

Critical appraisal of the Guidelines:

- The guidelines has put the entire onus on the states to enforce and monitor sustainable mining while completely relieving itself from any kind of responsibilities.
- There is no mechanism on who will enforce and monitor sustainable mining in bigger projects while states have been told to monitor for projects below 100 hectares.

Conclusion:

The new guidelines also focused on involving the public in the process. It said once mining sites that are to be auctioned for sand are identified, they should be put in public for at least one month for obtaining their comments and the final list should be finalized in accordance with them. Thus, the new guidelines are nothing but a compilation of all court orders for curbing illegal sand mining over the last few years.

Disaster and disaster management.

Discuss some of the key challenges faced in the India's Disaster Response Mechanism while suggesting solutions to the same. (250 words)

Reference: [VIF India](#)

Why this question:

The article discusses in detail the key challenges faced in the India's Disaster Response Mechanism.

Key demand of the question:

Discuss in detail the key challenges faced in the India's Disaster Response Mechanism and suggest solutions to overcome the same.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Start with what you understand by a Disaster and what is a Disaster Response Mechanism.

Body:

The question is straightforward and there isn't much to deliberate.



Disaster is an event or series of events, which gives rise to casualties and damage or loss of properties, infrastructures, environment, essential services or means of livelihood on such a scale which is beyond the normal capacity of the affected community to cope with.

Discuss some of the key Disasters faced by India – ranging from floods, droughts etc.

Discuss what are the key challenges in handling the Disasters in India.

Discuss the existing response mechanism available in the country.

Narrate the key challenges involved.

Conclusion:

Conclude with solutions to address them.

Introduction:

India is more vulnerable to natural disasters because of its unique geo-climatic condition, having recurrent floods, droughts, cyclones, earthquakes, and landslides. As India is a very large country, different regions are vulnerable to different natural disasters.

Disaster management in India refers to the conservation of lives and property during natural or man-made disasters. Disaster management plans are multi-layered and are planned to address issues such as floods, hurricanes, fires, mass failure of utilities, rapid spread of disease and droughts.

Body:

Key challenges in handling the Disasters in India:

Lack of governance:

- Most city governments struggle to deal with other day-to-day development challenges such as education, infrastructure and health, and so climate resilience and adaptation figure low on their priority list.
- Big cities such as Delhi and Mumbai have no city resilience plans because there is not just multiplicity of problems but also of authorities, which tend to work in silos whereas climate change cuts across several departments: public health, water, environment, energy, and social justice to name a few.

Lack of financial management:

- While the upfront capital costs of climate change mitigation and adaptation are being increasingly well understood, decision making and investment planning are hindered by uncertainty in the indirect costs and lack of simplified and transparent methods for assessing cost-benefit analysis of the steps that a city takes.
- They are not equipped with the financial management systems and processes required to access climate financing, such as green bonds

Lack of awareness:

1. Lack of active citizens who are informed and engaged on the subject of climate change and sustainability, which is essential to mitigate and build resilience, and demand accountability including transparency and information on liveability indicators such as air pollution levels, percentage of garbage segregated, modal share of public transport, walking and cycling.

Lack of manpower:



1. Then there is a shortage of skilled personnel specialized in areas such as environmental engineering transportation, traffic management, disaster management, and related areas.

No Environmental Impact Assessment:

- Roads, railway lines and housing colonies being laid and built without regard for natural water ways, but with formal planning permission.
- The State Disaster Management Agency also ignores them.
- Despite India being a signatory to the UN's Sendai Framework for Disaster Risk Reduction, little has changed on the ground.

Land use:

- Injudicious use of land is responsible for making states more prone to floods and landslides.
- However, other factors such as a change in land use patterns and climate change could have contributed to the situation on the ground.

Deforestation:

- Unfettered development activity had increased the chances of landslides, a major cause of casualties during the floods.
- Wetlands have been lost to development projects, construction of roads, and buildings at places too close to rivers.
- Other issues mentioned such as deforestation, encroachment and unplanned construction are self-evident priorities when development is viewed using the lens of climate-resilient water management (CRWM).

Disaster management constraints:

- There is a need to enhance the role of Civil Defence in Disaster Management process and formulating an effective National Plan for Disaster Management.
- Even now, the communication systems at the local level haven't been much developed.
- There are no Standard Operating Procedures for the deployment of National Disaster Response Force.
- There have been many cases where there has been a relief and rescue mobilization but by the time the teams reach the damage would have already been done.
- Ignoring all the safety guidelines, dwellings, factories and infrastructure facilities have been constructed in areas that are potentially vulnerable to natural hazards like floods.
- Disaster management plans exist on paper, but implementation remains a challenge.
- Despite the emphasis on a paradigm shift to a preparedness approach by the government, most parts of the country continue to follow a relief-centric approach in disaster management, rather than a proactive prevention, mitigation and preparedness path.

Disaster Response Mechanism:

- National Disaster Response Force remains afflicted with a number of constraints, be it in terms of infrastructure, training and equipment etc. to upgrade its efficiency up to the international standard.
- About 2% of the GDP of India is spent annually on post disaster recovery and added that the country cannot alleviate poverty and achieve our developmental goals unless concrete steps are taken to make the country disaster resilient.



- Lack of appropriate training infrastructure, well trained personnel and state of art technical equipment's.
- There is a need to bring about high end technology to increase our capacity in the domain of response and for that we need to integrate all our key institutions such as Indian Institute of Technology, Indian Institute of Management and Indian Space Research Organization in the area of research & development.
- Non-availability of critical equipment's, especially in the area of management of fire.

Way forward:

- Frame good macroeconomic policies before and after shocks.
- Provision in the budget for emergency spending helps crisis mitigation and resolution, insurance coverage and low public debt bolster government spending flexibility if reconstruction needs arise.
- Public investment in risk reduction.
- Improvement in government policy frameworks to better manage risk and mitigate economic and social costs.
- Estimate the probability of shocks and identify local vulnerabilities and integrate into plans for contingencies, investing in risk reduction, insurance, self-insurance, and disaster response.
- Tax and spending policies need to be flexible, to allow rapid redeployment of spending when needed.
- Coordination with foreign partners before disaster strikes could mobilize external assistance for risk reduction, which is likely to earn.
- NDRF needs to be better equipped with technical equipment and personnel training and emphasis should be laid on deploying young men in the response force.
- Need to have better coordination between NDMA and MHA for achieving an international standard response mechanism in India.
- Emergency medical response & preparedness for mass casualty management should acquire priority in the education curricula of medical nursing.
- The need and importance of priority attention to be accorded to training of personnel and procurement of modern equipment's.
- The government should create an online software for the management of the onsite data which could be updated without getting in to protocols.

Conclusion:

Disaster is a catastrophic situation in which normal pattern of life and or ecosystem has been disrupted and extraordinary emergency interventions are required to save and preserve lives and or environment. The best strategy is to be Proactive rather than reactive in tackling natural disasters and in mitigating the disasters in case of natural or man-made disasters.

Discuss the role of technology and advancement in Disaster management.(250 words)

Why this question:

Technology is being explored with great enthusiasm in solving various problems ranging from transportation to services delivery and industrial production. In this context it is important to analyze how Technology can help in disaster management.

Key demand of the question:

The question wants us to write in detail as to how Technology and innovation can play a role and help us in disaster management.

Directive:



Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Define what constitutes a Disaster.

Body:

Discuss the role of technology in disaster management E.g. technology has proven its merit as a resource for disaster relief and preparedness;

Technology in emergency responder agencies- identify and track populations such as elderly communities or areas with high concentrations of babies and children etc.

help rescue workers identify support resources and plan logistics during emergencies, also facilitates real-time communication during a disaster, and

emergency managers use the technology to forecast how residents will react to crises;

“By seeing how residents move, by gathering data on their experiences, what worked, what did not, and then going back after the emergency is over to study the emergency response and identify weak spots.” etc.

Discuss the utility of latest technologies such as Big data, artificial intelligence etc.

Conclusion:

Conclude with way forward.

Introduction:

A disaster is a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community's or society's ability to cope using its own resources. Though often caused by nature, disasters can have human origins.

Body:

India is a large country and prone to a number of natural hazards. Among all the natural disasters that country faces, river floods are the most frequent and often devastating. The shortfall in the rainfall causes droughts or drought like stimuli in various parts of the country. The country has faced some severe earthquakes causing widespread damage to the life and property. India has a coastline of about 8000 km which is prone to very severe cyclonic formations in the Arabian Sea and Bay of Bengal. Another major problem faced by the country is in the form of landslides and avalanches.

The role of Information Technology in disaster prevention:

GIS AND REMOTE SENSING:

- GIS provides a tool for effective and efficient storage and manipulation of remotely sensed data and other spatial and non-spatial data types for both scientific management and policy oriented
- This can be used to facilitate measurement, mapping, monitoring and modelling of variety of data types related to natural
- The specific GIS application in the field of Risk Assessment are Hazard Mapping to show earthquake, landslides, floods or fire hazards.
- Theses map could be created for cities, districts or even for the entire country and tropical cyclone T



Heat Maps are used by meteorological departments to improve the quality of the tropical storm warning services and quickly communicate the risk to the people likely to get affected by the

- : GIS and Remote Sensing can be used for preparing seismic hazards maps in order to assess the exact nature of risks.
- GIS can be used in carrying out search and rescue operations in a more effective manner by identifying areas that are disasters prone and zoning them accordingly to risk magnitudes

INTERNET:

- In the present era of electronic communication, the internet provides a useful platform for disaster mitigation communications.
- Launching of a well-defined web site is a very cost-effective means of making an intra-national and international presence felt.
- It provides a new and potentially revolutionary option for the rapid, automatic, and global dissemination of disaster information. A number of individuals and groups, including several national meteorological services, are experimenting with the Internet for real-time dissemination of weather observation, forecasts, satellite and other
- In the most critical phase of natural disasters electronic communication have provided the most effective and in some instances perhaps the only means of communication with the outside world.

WARNING AND FORECASTING SYSTEM:

- An advance system of forecasting, monitoring and issuing early warnings plays the most significant role in determining whether a natural hazard will assume disastrous proportions or
- Indian Meteorological Department (IMD) provides cyclone warnings from the Area Cyclone Warning Centres (ACWCs) It has developed the necessary infrastructure to originate and disseminate the cyclone warnings at appropriate
- Seismological observations in the country are made through national network of 36 seismic stations operated by the IMD, which is the nodal
- Long term drought proofing programmes on the natural resources of the district have been greatly helped by the use of satellite data obtained by National Remote Sensing Agency.
- The drought assessment is based on a comparative evaluation of satellite observed green vegetation cover (both area and greenness) of a district in any specific time period by the National Agricultural Drought Assessment and Management System (NADAMS).
- Flood forecasts and warnings are issued by the Central Water Commission (CWC) , Ministry of Water These are used for alerting the public and for taking appropriate measures by concerned administrative and state engineering agencies in the flood hazard



Conclusion:

Advancement in Information Technology in the form of Internet, GIS, Remote Sensing, Satellite communication, etc. Can help a great deal in planning and implementation of hazards reduction. For maximum benefit, new technologies for public communication should be made use and natural disaster mitigation messages should be conveyed through these measures.

Discuss in detail the Institutional Framework for Disaster Management in India. (250 words)

Reference: [VikasPedia](https://www.vikaspedia.com/)

Why this question:

The question is direct from the static portions of GS paper III.

Key demand of the question:

One must discuss in detail the Institutional Framework for Disaster Management in India.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain the Conceptual and Institutional Framework of Disaster Management in the country.

Body:

The National Disaster Management Authority (NDMA) was set up in 2005 by the Government of India as an apex body to spearhead and implement a holistic and integrated approach to Disaster Management.

NDMA has the responsibility for laying down policies, plans and guidelines for disaster management and coordinating their enforcement and implementation for ensuring preparedness, mitigation and timely and effective response to disasters.

NDMA has launched a number of initiatives to take the message of

Disaster management to all the stakeholders including community at the grassroots level.

NDMA has taken up mainstreaming of disaster risk reduction concerns in Government departments, States, Districts and civil society, School and College education, technical education, Panchayati Raj Institutions and

Urban Local Bodies. NDMA has laid down the framework of capacity building and mainstreaming DM for various disasters through its National Disaster Management Guidelines.

Conclusion:

Conclude with way forward.

Introduction:

The Indian subcontinent is among the world's most disaster prone areas. Almost 57% of the land is vulnerable to earthquake (high seismic zones III-V), 68% to drought, 8% to cyclones and 12% to floods.

Disaster management in India has evolved from an activity-based setup to an institutionalized structure; from single faculty domain to a multi-stakeholder setup; and from a relief-based approach to a 'multi-dimensional approach for reducing risk'

Body:

Institutional framework for disaster management in India:



The institutional structure for disaster management in India is hierarchical and functions at four levels – Centre, State, District and Local. The structure draws involvement of various relevant ministries, government departments and administrative bodies.

National Disaster Management Authority (NDMA):

- The Disaster Management ACT, 2005 provides for setting up of a National Disaster Management Authority (NDMA) with the Prime Minister as Chairperson.
- NDMA is to be assisted by a National Executive Committee which comprises of Secretaries to the Government of India heading various Ministries or Departments having administrative control over Agriculture, Atomic Energy, Defence, drinking water supply, environment and forests, finance, health, power, rural development, science and technology, space, telecommunication, urban development and water resources.

State Disaster Management Authority (SDMA):

- The Disaster Management Act 2005 also provides for setting up of State Disaster Management Authorities under the Chairpersonship of the Chief Minister.
- State Authority is to be assisted by a State Executive Committee under the Chairpersonship of the Chief Secretary of the State.

District Disaster Management Authority (DDMA):

- The structure of disaster management institutions goes down to the district level where the responsibility is given to DDMA which is headed by the Collector/ District Magistrate with elected representative of the local authority as co-chairperson.
- DDMA will act as the planning, coordinating and implementing body for disaster management at the district

Local Authority:

- For the purpose of disaster management, local authorities would include Panchayati Raj institutions and those agencies which control and manage civic services.
- These bodies are required to ensure capacity building of their employees for managing disasters and carrying out relief and reconstruction activities in the affected areas.

National Institute of Disaster Management (NIDM):

- The institute was formed as National Centre for Disaster Management (NCDM) in 1995 but was re-designated as National Institute of Disaster Management in 2005 after the enacting of the Disaster Management Act.
- The institute is headed by the Union Home Minister and Vice-Chairman, NDMA also acts as the Vice-President of the Institute.

National Disaster Response Force (NDRF):

- NDRF was constituted in 2006 with 8 battalions drawn from the paramilitary forces.
- Presently it has strength of 10 battalions. General superintendence of the force vests in NDMA and the force is headed by the Director General of NDRF and Civil Defence.
- These battalions are positioned at different locations to provide timely response to disaster situations and are available to State Governments at the time of need.

Integrated Data Resource Network (IDRN):



- Integrated Data Resource Network is a database in the electronic form maintained by the Ministry of Home Affairs.
- The data enlists inventory of equipment and human resources relevant to disaster management.

National Disaster Management Authority:

The Government of India (GOI), in recognition of the importance of Disaster Management as a national priority, has set up a High-Powered Committee (HPC) in August 1999 and also a nation committee after the Gujarat earthquake, for making recommendations on the preparation of Disaster Management plans and suggestion effective mitigation mechanisms.

NDMA Vision:

“To build a safer and disaster resilient India by a holistic, pro-active, technology driven and sustainable development strategy that involves all stakeholders and fosters a culture of prevention, preparedness and mitigation.”

Functions and Responsibilities:

NDMA, as the apex body, is mandated to lay down the policies, plans and guidelines for Disaster Management to ensure timely and effective response to disasters. Towards this, it has the following responsibilities: –

- Lay down policies on disaster management
- Approve the National Plan
- Approve plans prepared by the Ministries or Departments of the Government of India in accordance with the National Plan
- Lay down guidelines to be followed by the State Authorities in drawing up the State Plan
- Lay down guidelines to be followed by the different Ministries or Departments of the Government of India for the Purpose of integrating the measures for prevention of disaster or the mitigation of its effects in their development plans and projects
- Coordinate the enforcement and implementation of the policy and plans for disaster management
- Recommend provision of funds for the purpose of mitigation
- Provide such support to other countries affected by major disasters as may be determined by the Central Government
- Take such other measures for the prevention of disaster, or the mitigation, or preparedness and capacity building for dealing with threatening disaster situations or disasters as it may consider necessary
- Lay down broad policies and guidelines for the functioning of the National Institute of Disaster Management.

Conclusion:

International agencies also play a role in disaster management. UNDP along with NDMA took up Disaster Risk Reduction (DRR) and Urban Risk Reduction programmes. World Bank is associated with National Cyclone Risk Mitigation Project (NCRMP) being taken up in Andhra Pradesh and Orissa. Red Cross Society also provides valuable support during relief operations.



What do you understand by a public health emergency of international concern?
Present the case of Corona outbreak in China while discussing the preparedness of India for such an epidemic. (250 words)

Reference: [Live Mint](#)

Why this question:

Wuhan has been the epicenter of this spread of Coronavirus. There has been a consistent rise in number of cases registered and death due to it in the province. WHO has confirmed that the virus can spread from human-to-human. Thus the context of the question.

Key demand of the question:

Discuss in detail what a public health emergency of international concern is.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Public health emergency of international concern is defined as an “extraordinary event that is determined to constitute a public health risk to other States through the international spread of disease and to potentially require a coordinated international response.” The public emergency announcement is the highest level of alarm that is only raised during the gravest of outbreaks.

Body:

Discuss the case of corona virus spreading rapidly in China.

Explain the factors that need focus during such an outbreak.

Explain how China is managing the outbreak.

Discuss the levels of preparedness of India for such mass epidemics.

Conclusion:

Current health infrastructure in India paints a dismal picture of healthcare delivery system in the country, however India needs to ensure that the Central and state health agencies act in tandem and gear up the capacity to handle such concerns.

Introduction:

The World Health Organization (WHO) has announced that it was “too early” to declare the outbreak of the novel coronavirus in China a public health emergency of international concern (PHEIC), while warning that the number of cases may increase as much about the virus remains unknown.

Body:

Public health emergency of international concern

Public health emergency of international concern is defined as an “**extraordinary event that is determined to constitute a public health risk to other States through the international spread of disease and to potentially require a coordinated international response.**” The public emergency announcement is the highest level of alarm that is only raised during the gravest of outbreaks.

Coronavirus:

Coronaviruses (CoV) are a large family of viruses that cause illness ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV). Coronaviruses are zoonotic, meaning they are transmitted between animals and people.



Corona virus spreading rapidly in China

- China is struggling to contain the spread of a new virus that has claimed at least six lives so far since 31st December.
- Almost 300 people have been hospitalised. Worryingly enough doctors have confirmed that the infection is spreading rapidly among humans.
- The outbreak has triggered memories of SARS or severe acute respiratory syndrome, SARS originated in China in 2002, by 2003 it infected more than 8,000 people and killed 774 in a pandemic that ripped through Asia. The present virus is called the Coronavirus.
- It was first detected in Wuhan city that has cancelled the upcoming Lunar New Year celebrations, where hundreds of thousands of people were expected to attend.
- Tour agencies have also been banned from taking groups out of Wuhan, even as Chinese President Xi Jinping has ordered resolute efforts to curb the spread of the virus.
- With one patient infecting as many as 14 medical staff in just one hospital, Chinese doctors believe the disease is spreading far more easily than it was thought previously.
- By late January, there were 300 confirmed cases in China and a death count that was still in the single digits, but rising. And despite airport screenings, a traveler had brought the first case to the U.S.

The levels of preparedness of India for such mass epidemics:

- Most countries, including India, are unprepared for outbreaks of major infectious diseases, with Asian countries facing significant risks, according to the Global Health Security Index 2019.
- **India is not prepared to tackle health epidemics**, particularly given its urban congestion. In fact, given the city structure and the way the settlements have grown, epidemics, once they occur, will spread at a galloping rate.
- The slum clusters all around the cities, the unhygienic growth, and poor waste disposal system will only aggravate the situation.
- Health infrastructure is the basic support for the delivery of public health activities, but current facilities in the country paint a dismal picture of the delivery system.
- **There are 23,582 government hospitals with 710,761 beds in the country, according to the National Health Profile 2018. These comprise 19,810 hospitals in rural areas with 279,588 beds and 3,772 hospitals in urban areas with 431,173 beds.**
- More than 70% of India's population lives in rural areas and there are 156,231 sub centres, 25,650 primary health centres and 5,624 community health centres to cater to their needs, according to figures from 31 March 2017.

Conclusion:

The private sector has emerged as a strong force in India's healthcare service delivery. For health emergencies such as coronavirus, private hospitals have geared themselves up.

"Ease of living for women in the India is intricately linked to the water woes of the country", Comment. (250 words)

Reference: [Indian Express](#)

Why this question:

The question is in the backdrop of disasters in the form of water woes and in what way they affect the lives of women in the country directly. The article highlights the facts that With women playing a leadership role in managing their community's water resources, the Jal Jeevan Mission will provide a massive fillip to the ease of living for women, and they will no longer be beasts of burden.

**Key demand of the question:**

Discuss the interlinkages between Ease of living of women and the water scarcity/issues in the country.

Directive:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:**Introduction:**

Briefly discuss some facts pointing at the context of the question.

Body:

Discuss Role of women in handling water as a resource in the community.

Explain the water crisis prevalent in the country.

Explain why is it important to address water issues to ensure good living for women in the country.

One can use suitable case study and explain what needs to be done.

Quote the policies like Jal Jeevan mission and their reach.

Conclusion:

Conclude with way ahead.

Introduction:

For centuries, in most parts of the country, especially in rural areas, our women have borne the responsibility (or should I say the burden) of ensuring the water security of their homes. Our mothers and sisters have silently catered to every water need of their families. In some instances, this would involve walking long distances in unfriendly weather and treacherous terrain — in the blistering heat of Rajasthan to the majestic hills of Uttarakhand to the parched lands of eastern Maharashtra.

Body:**Water crisis prevalent in the country:**

- About 60% of the States were marked as “low performers” and this was cause for “alarm”.
- The report has predicted that by 2030, the country’s water demand is projected to be twice the available supply, implying severe water scarcity.
- Nearly 600 million Indians faced high to extreme water stress.
- About 2,00,000 people died every year due to inadequate access to safe water.
- 52% of India’s agricultural area remains dependent on rainfall so the future expansion of irrigation needs to be focused on last mile efficiency.
- Twenty-one cities, including Delhi, Bengaluru, Chennai and Hyderabad will run out of groundwater by 2020, affecting 100 million people.
- Critical groundwater resources, which accounted for 40% of India’s water supply, are being depleted at “unsustainable” rates and up to 70% of India’s water supply is “contaminated”.

Role of women in handling water as a resource in the community:

- According to a report by the National Commission for Women, on an average, a rural woman in Rajasthan walks over 2.5 km to reach a water source.



- This is probably an underestimate, but the bottom-line is that our women and girls spend a significant proportion of their time on fetching water.
- But things are changing. In 2014, India witnessed history in the making as the nation saw an incredible shift in the national development agenda.
- This shift in policy focus was to reduce the drudgery faced specially by women and girls, and improve their quality of life by providing them services targeted for their convenience.

Government measures to address the problem:

- The first major step in this direction was when Prime Minister Narendra Modi drew the attention of 1.25 billion Indians from the ramparts of the Red Fort and addressed the need to end the practice of open defecation — and restore the dignity of our women and their basic health.
- **By October 2019, all villages in India had declared themselves ODF.** Just recently, another study by scholars from the Ashoka University and the University of Virginia, has found that the increased *in-home toilet access in India has significantly reduced sexual assaults on women.*
- There were many subsequent programmes of our government focused on reducing drudgery for women, improving their health and giving them the respect they deserve. These programmes have also empowered women to lead the change.
- **The Ujjwala scheme provided LPG cylinders** to crores of rural women, saving them from the toxic fumes that they breathed on a daily basis when they burnt firewood for their chulhas.
- **The POSHAN abhiyan** supports the health of children, adolescent girls and women, to reduce cases of low birth weight, stunting, under-nutrition, and anaemia.
- **The Swachh Bharat Mission** has created a cadre of head women masons, better known as “Rani Mistris”, who have breached a traditional male bastion and have already constructed lakhs of toilets across the country.

Jal Jeevan mission – a solution:

The Mission was announced in August 2019. The chief objective of the Mission is to provide piped water supply (Har Ghar Jal) to all rural and urban households by 2024.

- With adequate capacity building and training, water can be most efficiently managed at the lowest appropriate level.
- Adopting this principle, the Jal Jeevan Mission’s first preference will be to have community-managed single village ground water-based schemes, wherever sufficient quantity and good quality of groundwater exists.
- Wherever adequate quantity of safe groundwater is not present, or where it may be technically not feasible to have single-village schemes, surface water-based multi-village schemes will be promoted.
- Further, in some remote regions, where it may not be techno-economically feasible to have household water supply schemes, local innovations, such as solar-based schemes will be encouraged.



- It is not commonly known that household waste water from HWS amounts to about 75% of the amount of water supplied.
- With the rural households to get HWS under the proposed mission, huge quantities of household waste water will be generated across the country, therefore making its effective management critical.
- There is a plan to include a mandatory provision under the mission for the effective channeling and treatment of household waste water, through appropriate and low cost drainage and treatment systems.
- Once appropriately treated, this waste water can be used for both recharge of groundwater as well as for irrigation purposes.

Way forward:

- An extensive information, education and communication will be needed to create a people's movement for water management.
- The ongoing Jal Shakti Abhiyan will help in creating awareness about the importance of integrating source sustainability and water reuse.
- This integrated approach to decentralized, community managed, and sustainable water management is the backbone of the government's plan to ensure that every household gets the benefits of water supply.

Conclusion:

With women playing a leadership role in managing their community's water resources, minus the drudgery of walking for miles to fetch water for their families, the Jal Jeevan Mission will provide a massive fillip to the ease of living for women, and they will no longer be beasts of burden. ***The signs are all there and the winds of change are in tandem with the mood of the nation. For real change, it is optimal that we ensure that the real heads of the households our mothers and sisters continue to be at the center of our country's development agenda.***

Discuss the significance of disaster prevention and highlight issues involved using a suitable case study.(250 words)

Reference: [Hindustan Times](#)

Why this question:

The question is in the backdrop of recent onset of Corona virus and the mass epidemic it has created in China, forcing us to evaluate the importance of disaster prevention methods.

Key demand of the question:

Discuss in detail the significance of disaster prevention in the cycle of disaster management.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:**Introduction:**

Briefly define what disaster prevention is.

Body:

Discuss the aspects of preparedness for Disaster; explain the key areas that need address for disaster prevention.



Define disaster, hazard, vulnerability and risk.

Describe the types and the causes of disasters.

Discuss the magnitude and distribution of disasters.

Explain different phases of disasters.

Take the case of China's Corona virus and suggest what needs to be done.

Conclusion:

Conclude with way forward.

Introduction:

Disaster prevention is the outright avoidance of adverse impacts of hazards and related disasters prevention (i.e. disaster prevention) expresses the concept and intention to completely avoid potential adverse impacts through action taken in advance.

Examples include dams or embankments that eliminate flood risks, land-use regulations that do not permit any settlement in high risk zones, and seismic engineering designs that ensure the survival and function of a critical building in any likely earthquake. Very often the complete avoidance of losses is not feasible and the task transforms to that of mitigation. Partly for this reason, the terms prevention and mitigation are sometimes used interchangeably in casual use.

Body:

Important key terminologies:

Disaster: several definitions are frequently given to disaster. The World Health Organization (WHO) defines a disaster as "a sudden ecological phenomenon of sufficient magnitude to require external assistance". It is also defined as any event, typically occurring suddenly, that causes damage, ecological disruption, loss of human life, deterioration of health and health services, and which exceeds the capacity of the affected community on a scale sufficient to require outside assistance

Hazard: is a rare or extreme event in the natural or human made environment that adversely affects human life, property or activity to the extent of causing a disaster. It is essential to make a distinction between hazards and disasters, and to recognize that the effect of the former upon the latter is essentially a measure of the society's vulnerability.

Vulnerability: is the degree of loss resulting from a potentially damaging phenomenon.

Risk: is the expected losses (lives lost, persons injured, damages to property and disruption of economic activity) due to a particular hazard. Risk is the product of hazard and vulnerability.

Risk is the probability that a person will experience an event in a specified period of time. Risk as a function of hazard and vulnerability, a relationship that is frequently illustrated with the following formula, although the association is not strictly arithmetic: **Risk = hazard x vulnerability**

The need for Disaster prevention:

- The Vulnerability Atlas of India reveals that about 60% area is vulnerable to Earthquakes, 8% to Cyclones, 12% to Floods and 68% of land under cultivation is prone to Drought.
- According to the United Nations International Strategy for Disaster Reduction (UNISDR), India ranked second after China for natural disasters.
- According to World Bank report, India's direct loss due to disaster is around 2% of its GDP.



- Rapid increase of population and urbanization along prone areas and other developments have increased the level of exposure to hazards.
- Floods are becoming a common phenomenon in India. Ignoring all the safety guidelines, dwellings, factories and infrastructure facilities have been constructed in areas that are potentially vulnerable to natural hazards like floods.
- As India is still not catching up with the developed countries in adopting disaster management strategies effectively, the losses are mounting.
- A report published in 2017 by the Comptroller and Auditor General (CAG) about India's performance audit on flood control and management schemes categorically stated that only 7% of dams (349 out of 4,862) have Emergency Action Plans.
- Man-made factors have compounded the scale of the disaster. Unabated expansion of hydro-power projects and construction of roads to accommodate ever-increasing tourism, especially religious tourism, are also major causes for the unprecedented scale of devastation.
- India has been ranked as the sixth most climate change-vulnerable country by the Climate Risk Index 2018.
- Dealing with current vulnerabilities and projected climate change impacts needs innovative thinking and participatory planning and action.

Challenges involved:

Lack of governance:

- Most city governments struggle to deal with other day-to-day development challenges such as education, infrastructure and health, and so climate resilience and adaptation figure low on their priority list.
- Big cities such as Delhi and Mumbai have no city resilience plans because there is not just multiplicity of problems but also of authorities, which tend to work in silos whereas climate change cuts across several departments: public health, water, environment, energy, and social justice to name a few.

Lack of financial management:

- While the upfront capital costs of climate change mitigation and adaptation are being increasingly well understood, decision making and investment planning are hindered by uncertainty in the indirect costs and lack of simplified and transparent methods for assessing cost-benefit analysis of the steps that a city takes.
- They are not equipped with the financial management systems and processes required to access climate financing, such as green bonds

Lack of awareness:

- Lack of active citizens who are informed and engaged on the subject of climate change and sustainability, which is essential to mitigate and build resilience, and demand accountability including transparency and information on liveability indicators such as air pollution levels, percentage of garbage segregated, modal share of public transport, walking and cycling.

**Lack of manpower:**

- Then there is a shortage of skilled personnel specialised in areas such as environmental engineering transportation, traffic management, disaster management, and related areas.

No Environmental Impact Assessment:

- Roads, railway lines and housing colonies being laid and built without regard for natural water ways, but with formal planning permission.
- The State Disaster Management Agency also ignores them.
- Despite India being a signatory to the UN's Sendai Framework for Disaster Risk Reduction, little has changed on the ground.

Land use:

- Injudicious use of land is responsible for making states more prone to floods and landslides.
- However, other factors such as a change in land use patterns and climate change could have contributed to the situation on the ground.

Deforestation:

- Unfettered development activity had increased the chances of landslides, a major cause of casualties during the floods.
- Wetlands have been lost to development projects, construction of roads, and buildings at places too close to rivers.
- Other issues mentioned such as deforestation, encroachment and unplanned construction are self-evident priorities when development is viewed using the lens of climate-resilient water management (CRWM).

Disaster management constraints:

- There is a need to enhance the role of Civil Defence in Disaster Management process and formulating an effective National Plan for Disaster Management.
- Even now, the communication systems at the local level haven't been much developed.
- There are no Standard Operating Procedures for the deployment of National Disaster Response Force.
- There have been many cases where there has been a relief and rescue mobilization but by the time the teams reach the damage would have already been done.
- Ignoring all the safety guidelines, dwellings, factories and infrastructure facilities have been constructed in areas that are potentially vulnerable to natural hazards like floods.
- Disaster management plans exist on paper, but implementation remains a challenge.
- Despite the emphasis on a paradigm shift to a preparedness approach by the government, most parts of the country continue to follow a relief-centric approach in disaster management, rather than a proactive prevention, mitigation and preparedness path.



- Disaster maps and vulnerability profiles by the Ministry of Housing and Urban Poverty Alleviation of the Government of India identify winds and cyclones, earthquakes, and floods as disaster risks.
- It is unclear if the maps have been updated to include weather and climate extremes and the associated crop losses or loss of lives or health risks.

Case of China's Corona virus

- In order to handle any issues regarding food, water and other essential supplies, the Hubei Foreign Affairs Office has also provided two helplines (027-87122256 and 87811173) on which the provincial authorities can be contacted round the clock
- In accordance with international practice and in accordance with relevant Chinese epidemic prevention regulations, China has made corresponding arrangements to provide necessary assistance,
- The evacuation of foreign nationals including Indians from Hubei and Wuhan remain mired in logistical issues especially about not allowing the virus to spread through those being evacuated.

Conclusion:

Infectious diseases including those of the zoonotic variety are on the rise in India. In addition, regions in India suffer from seasonal outbreaks of dengue, malaria and influenza strains. In this context, the nation-wide disease surveillance programme needs to be strengthened.

Linkages between development and spread of extremism.

Has the world entered a new normal where the space has become the next frontier?
Elucidate with suitable examples. (250 words)

Reference: [The Hindu](#)

Why this question:

The question is based on the theme that space security is next frontier that the world countries must aspire for.

Key demand of the question:

Discuss the possible threats that space as the new frontier poses upon the security aspects of a country. Explain with possible examples.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Briefly explain that It's a brave new world for business leaders and emerging economies that want to flex their strength at zero gravity.

Body:

Explain that today we are in a complex, multifaceted geopolitical situation than the over-simplistic East-versus-West narrative of the past and that Space has occupied a new perspective.

Discuss the efforts being made by countries to explore space as the new frontier.

Explain the challenges that it may pose to internal security of a country.

Conclusion:



Conclude with what needs to be done to address the new threat.

Introduction:

Recently India carried out an anti-satellite (ASAT) test using an interceptor missile (as a kinetic kill vehicle) to neutralize a target satellite (possibly the Microsat-R launched in January this year) in a Low Earth Orbit (LEO) at an altitude of around 300 km.

In contrast, China had quietly carried out its first successful hit-to-kill intercept in January 2007 till international reports about the consequent increase in space debris forced Beijing to acknowledge the test. France and Israel are believed to possess the capability. India's test has not violated any norm as there is no international treaty prohibiting the testing or the development of ASATs.

Body:

Efforts being made by countries to explore space as the new frontier

- Both the U.S. and USSR began to develop ASAT systems as a part and parcel of their anti-ballistic missile programmes. During the 1980s, both countries concluded their kinetic kill interceptor testing.
- Instead, they began to focus on co-orbital anti-satellite systems and directed energy (laser) systems which could neutralise a satellite without fragmenting it and generating space debris.
- Since the Sputnik was launched in 1957, more than 8,000 satellites/manmade orbiting objects have been launched, of which about 5,000 remain in orbit; more than half are non-functional.
- Currently, more than 50 countries own/operate the nearly 2,000 functional satellites in orbit.
- The U.S. accounts for more than 800 of these, followed by China (approximately 280), Russia (approximately 150).
- India has an estimated 50 satellites. Of these 2,000 satellites, over 300 are dedicated military satellites.
- Once again, the U.S. has the biggest share here, with nearly 140, followed by Russia with nearly 90 and China with nearly 40.
- The salience of space in defence is evident from the fact that all three countries — the U.S., Russia and China — have set up 'Space Commands'.

India's efforts:

Over the last one year, the Indian Space Research Organisation (ISRO) took giant leaps forward, one success after the other.

- **INSAT:** The system is a network of satellites that facilitates communication and broadcasting across the south Asian region. It ushered in a revolution in India's television and radio broadcasting, telecommunications and meteorological sector.
- **Created Polarized Satellite Launch Vehicle (PSLV)** to make cost effective launch system. This has also increased international space collaboration by launching satellites of other nations at low costs.
- **Chandrayaan 1:** It has launched Chandrayaan 1 lunar probe mission in 2008.
- **Mangalyan:** ISRO has launched Mars Orbiter Mission in 2013 and created history by launching Mangalyan (mission spacecraft) into the Mars orbit in maiden attempt.
- **ASTROSAT:** It has launched first space observatory in 2015 to become fourth agency to do so after NASA, Roscosmos and ESA.
- **Scramjet:** Supersonic Combusting Ramjet has been launched by ISRO. This system works on Air-breathing Propulsion System which uses atmospheric oxygen to burn the fuel in the rocket.



- **RLV-TD:** ISRO demonstrated its Reusable Launch vehicle space shuttle RLV -TD to launch satellites around earth orbit and re-enter into the atmosphere.
- **104 satellites:** ISRO has created history by launching 104 satellites in one go.
- **Crew Escape module:** ISRO has test-launched Crew Escape Module paving the way for manned space mission Gaganyaan.

Privatization of Indian space:

- ISRO has been pursuing a conscious approach of building up and nurturing the industrial capabilities in the country to maximally support the Indian Space Programme.
- Through appropriate transfer of technology and hand-holding, ISRO is making focused efforts to consolidate and enhance participation of Indian industries for manufacturing and production of space related hardware such as rocket engine & stages, propellant tanks, spacecraft structures, solar panels, thermal control systems, electronic packages etc., required for satellites and launch vehicles.
- A number of private players have shown interest and promise in the Indian space programme, and a few of them are interested in their own launch vehicles. Privatizing the operation of the rocket would free up ISRO to focus on more cutting-edge missions.
- ISRO is severely constrained to meet the ever-increasing demands from over 60 central departments, 29 states and thousands of private sector companies hence urging the domestic industry to come forward and help augment the manufacture and launch of satellites will help ISRO.
- The nascent private space industry in India will not only provide services within the country but also opportunities for services in the neighboring countries and other parts of the globe.

Challenges:

- The salience of space in defence is evident from the fact that all three countries — the U.S., Russia and China — have set up '**Space Commands**'.
- This has given rise to demands to prevent the militarisation of space so that it is preserved "as the common heritage of mankind".
- The U.S. has been adamantly opposed to negotiating any legally binding instrument to prevent '**militarization of space**', questioning the very meaning of the term, given that space as a medium is increasingly used for military applications.
- Growing amounts of space debris pose a real risk to satellites and spacecraft. There are over 20,000 objects of debris which are the size of golf balls while those of smaller size run into hundreds of thousands, totalling nearly 6,000 tonnes.
- The U.S. Department of Defense routinely tracks approximately 23,000 man-made objects achieving orbit to ensure safety of its space-based assets.
- One of the reasons that the international community protested strongly about the 2007 Chinese test was that it added nearly 3,000 pieces of debris as the test was done at a higher altitude (800 km), from where it would take decades to dissipate.
- Anyhow, the debris created by the Indian test, which was undertaken at a low altitude, is expected to dissipate much faster.

Conclusion:

At present, the U.S. is the dominant presence in space, which reflects its technological lead as well its dependence on space-based assets. It therefore perceives any negotiations as a constraint on its technological lead. While countries have developed and tested ASATs, they are not known to have



stockpiled ASAT weapons. Effective use of an ASAT also requires space situational awareness capability, which works best if it is a cooperative effort.

Discuss the role of external state and non-state actors in creating challenges to internal security. (250 words)

Reference: [Idsa](#)

Why this question:

The question is straightforward and is from the static portions of the syllabus.

Key demand of the question:

Discuss in detail the role of external state and non-state actors in creating challenges to internal security.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

First explain who constitute external state and non-state actors.

Body:

Highlight that India has been facing internal security threats from various external and internal state and non-state actors since independence.

Explain about external non state actors – Non-state actors are individuals or organizations that have powerful economic, political or social power and are able to influence at a national and sometimes international level but do not belong to or allied themselves to any particular country or state. They include NGOs, MNCs, religious outfits, Drug Cartels, Mafias, terrorist groups etc. they may work in tandem for the peace, stability and development of a country or they may work against the State. Discuss the threat that they pose to internal security in India such as insurgency, terrorism, cyber security, communalism, counterfeit currency etc.

Discuss how should India deal with such challenges

Conclusion:

Conclude with solutions and ways to address the problems.

Introduction:

India has been facing challenges on the front of internal security since independence from various state and non-state actors. External State actors refer to those entities which have formal backing of a sovereign state for carrying out any intended action. Non state actors on the other hand, have a considerable power of influencing international events but they do not have formal state backing. Examples of state actors are the army, bureaucracy, intelligence agencies etc. whereas non state actors would be NGOs, civil society organizations, extremist outfits, multinational companies etc.

Body:

External State actors are responsible for posing a challenge to internal security in multiple ways:

- Countries surrounding India have been active in exploiting the volatile situation presented by the turmoil in the northeast. Not only countries such as China, Pakistan, Bangladesh and Myanmar, but also smaller powers such as Bhutan and Nepal have been involved in the region.
- Through political backing, economic assistance, logistic support, military training or arms supplies these countries have varyingly contributed to the ongoing violence in this region.



- The state may carry out a limited war against Indian state and this might have ramifications for our internal security too
- They might support the various insurgent groups, Naxalites, or separatist groups through funding, training or logistics
- There have been instances where state actors have been responsible for carrying out cyber warfare through hacking and other espionage.

Non state actors however have played their nefarious role too in creating problems for India:

- **Insurgency:**

- North-East suffers from violent movements based upon ethnic identities leading to clashes. China is alleged to support such acts for instance. ULFA members of Assam were given shelter by China.

- **Terrorism:**

- Pakistan has been a major exporter of terrorism to India. Non-state actors like terrorist groups for instance Lashkar-e-Taiba, Jaish-e-Mohammad are a continuous threat.
- Non state actor -sponsored terrorism, often motivated by fundamentalist ideologies, backed by secretive but efficient financial networks, use of IT, clandestine access to chemical-biological and nuclear materials, and illicit drug trafficking, has emerged as a major threat to international stability.
- These groups aim to not only create instability in states like J&K, they also have a larger aim of destabilising the country. This is done through sporadic terrorist strikes, which spreads terror and panic. This could also adversely affect the ability of the Indian state to pursue economic modernisation.

- **Naxalism:**

- Left wing extremism affects states like Chhattisgarh, Jharkhand and West Bengal.

- **Drug trafficking:**

- Inter and Intra state trafficking takes place, through golden crescent and golden triangle routes.
- Drugs from Golden Crescent (Pakistan, Afghanistan and Iran) have affected Punjab and Golden Triangle (Laos, Myanmar and Thailand) has affected North Eastern states.

- **Human-trafficking:**

- Children and women trafficking takes place via Bangladesh and Nepal.

- **Counterfeit currency:**

- It corrodes economy from inside, by facilitating black money and money laundering activities as well as funding terrorism, which itself creates a demand for fake currency, thereby creating a positive feedback loop. This is the issue arising especially from Pakistan.

- **Communalism:**



- Propagandas are run and funded by enemy country and other non-state actors (NGOs and CSOs) to destabilize India by damaging the socio-religious fabric and ensure riots.
- **Cyber Security:**
 - Recent cyber-attacks by Legion, ATM skimming are examples. Pakistani hackers often hack government websites.
 - They can also incite people for regionalism thus demanding their separate state which further increases secessionist tendency

Conclusion:

Both state and non-state factors from outside have created problems in our internal security framework. Hence while it is imperative to guard our borders and strengthen our diplomacy, on the other hand, we need to check the various non state actors who come in hidden forms. There is a need for a national internal security doctrine to deal with various challenges.

Security challenges and their management in border areas - linkages of organized crime with terrorism

India faces significant challenges in the internal, geopolitical and economic front going ahead in 2020. Managing these challenges will decide the progress India makes in 2020. Elucidate. (250 words)

Reference: [The Hindu](#)

Why this question:

The article brings out a detailed analysis of the Geopolitical fault-lines that have been widening since 2019 and in what way these challenges will contribute positively and negatively to the progress that India will make in 2020.

Key demand of the question:

Discuss the challenges that India is facing on the internal, external and economic fronts. Suggest solutions to resolve the same.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Briefly explain the context of the question.

Body:

Firstly, discuss the problems India is facing on the internal, geopolitical and economic fronts.

Discuss the causative factors responsible for these challenges.

Explain in what way these factors will decide progress of India in 2020.

Conclusion:

Conclude with what needs to be done to address these threats and challenges.

Introduction:

In 2020, India needs to gear up to face thorny problems on the internal, geopolitical and economic fronts. The image of a darkening world which haunted 2019 continues, even as 2020 commences.



Together with increased turbulence, what is evident is that the world is regressing in several directions. Democracy and democratic freedoms are coming under increasing attack accompanied by a retreat from liberalism and globalisation. This is not limited to any one country or a group of countries, but is evident across much of the world.

Body:

Challenges that India is facing:

Geopolitical scenario:

- Geopolitical fault-lines widened in 2019. America's leadership of the world came under increasing threat from countries such as China.
- The future of the United Kingdom, under the shadow of Brexit, remained unclear. Europe seemed to be in eclipse. Latin and Central America were in turmoil.
- In Asia, Afghanistan appeared to be at a crossroads in its history. Instability plagued Syria, Iraq, Lebanon and Egypt.
- Civil war conditions prevailed in many regions. Violent protests raged in many domains, including Hong Kong, once a symbol of "One Country Two Systems".
- Existing threats to the security of nations remained unchanged, even as offensive cyber-attacks became the new weapon of choice in many situations.
- As 2020 progresses, the spectre that haunts nations is, if anything, bleaker. Geopolitically, it would be tempting to assert that this is perhaps the most troubled time in recent history, given the looming spectre of an all-out war between Iran and the United States.
- Exertion of "maximum pressure" by the U.S. to minimise Iran's influence and reduce its support to proxies in the region and elsewhere, combined with Iran's only slightly less provocative posture as seen towards the end of 2019, had resulted in a major stand-off by the beginning of 2020.

Domestic tensions:

- From a national perspective, 2019 posited at best, a mixed bag. Political tensions had intensified in the first half of the year in view of the General Elections held in April-May, and against the backdrop of victories of Opposition parties in the Assembly Elections in Madhya Pradesh, Rajasthan and Chhattisgarh towards the end of 2018.
- Acrimony over allegations of corruption, especially over the Rafale fighter aircraft deal, had further vitiated the political atmosphere.
- The Government initiated another controversial move to push through the Citizenship (Amendment) Act, which is implicitly seen as linked to a National Register of Citizens, though the Government (after having indicated at one point about such linkage) has since declared that this is not the case.
- It provoked widespread protests on the ground that the legislation violated some of the basic precepts of the Constitution, and applied the test of religion, to exclude (Muslim) refugees from neighbouring countries such as Pakistan, Bangladesh and Afghanistan, from being given Indian citizenship.

Neighbourhood ties:

- As 2020 commences, India's foreign policy challenges remain very considerable. India-Pakistan relations remain frozen, even as Pakistan continues to make overtures to the U.S., and further cements its relationship with China at one level and Saudi Arabia at another.



- Sino-Indian relations continue to be riddled with numerous problems. The vexed Sino-Indian border dispute remains in deep freeze.
- China, meanwhile, has embarked more aggressively on establishing its leadership across Asia; in the shadow play for influence across parts of Asia, including South Asia, China seems to be gaining at India's expense.
- India's attempts at creating a supportive environment in its immediate neighbourhood in 2020 remains equally challenging. While relations with the Maldives improved during the past year, the advent of a new Government in Sri Lanka, headed by the Rajapaksas, does not augur too well for India.
- Relations with the United Arab Emirates are better than at any time previously, but the India-Saudi Arabia relationship can at best be termed uncertain.
- Relations with Iran are likely to become highly problematic, in view of India's "tilt" towards the U.S., and the open hostility on display currently between Iran and the U.S.

Issues within the country:

- On the domestic front, India again will need to find solutions to quite a few thorny problems.
- Removing tight controls in J&K and restoring civil liberties there, including the release of senior political leaders, will require very deft handling, given the "pressure cooker" atmosphere that prevails.
- India will also need to watch out for a very different type of agitation in J&K, something between "civil disobedience" and an "intifada type" struggle.
- While India appears reasonably well-positioned to deal with some of the other internal threats, including insurgencies in the North-east, Naxalite violence, and the "terror imperative", the fallout of protests over the CAA has the potential to become India's most serious threat in decades.
- Already, the eddies of controversy over this and other disparate issues are beginning to coalesce into a major maelstrom of protests, with India's youth, including many belonging to universities and higher institutes of learning, up in arms on manifold issues.
- At present these seem to have little in common, excepting opposition to those in authority for the latter's perceived insensitivity to public protests.

Economic crisis:

- Furthermore, given the current economic malaise facing the country, which can hardly be treated as a cyclical phenomenon, the economic portents for 2020 also do not look too good.
- For several months now, the country has witnessed the slowing down of the economy and India's growth story appears set to lose much of its shine.
- A sustained below 5% GDP growth could become a recipe for disaster. Already, India is being mentioned as among 2020's top geopolitical risks.

Way forward:

India as an "emerging power" faces many challenges of poverty, internal conflicts, political instability in the domestic and regional ambit, as well as economic and security issues in the global realm. Hence, India's preoccupation ought to be directed at reforming the market structure, developing infrastructure to hasten growth of the manufacturing sector at the domestic level, rather than increasing India's dependence on an export-led economic system.



Such economic agendas call for significant changes in the domestic sphere: allocation of more funds to the social sector, job creation for the unemployed youth, health and sanitary issues, and an inclusive development agenda. This will ensure that a distinct identity can be furthered, instead of India merely emulating norms and practices constructed and sustained by countries with different social structures and domestic concerns.

Only an inclusive and all-round developmental agenda can allow India's inclusion in the "great power" club in a true sense, where development of its people will coincide with the development of the nation.

Conclusion:

Given the total impact of the various aspects, those in charge would do well to be aware of and prepare for the major problems that lie ahead. The digital revolution that is under way and the awesome power of Artificial Intelligence, Machine-Learning, Quantum Computing and Bio-Technology may not be enough in the circumstances.

Given a rising graph of cross-border terrorism over the past two decades, Discuss in what way cooperation with neighbors on security is essential for India. (250 words)

Reference: [Research Gate](#)

Why this question:

The question tends to analyse the effect of rising incidences of cross-border terrorism over the past two decades and in what way they necessitate India to have cooperation with neighbors on security.

Key demand of the question:

Discuss in detail the case of the question, highlight significance of the relations with neighbor countries and especially on the aspects of Security.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

With eleven neighboring countries (including four across the seas), many of which share cross-border Diasporas with India, internal peace and external security are inextricably intertwined.

Body:

Discuss in detail relations of India with the neighboring countries on a case by case basis; Bangladesh, China, Nepal and Pakistan etc.

Take hints from the article and explain singularly the key issues and threats posed by each neighboring country to India.

Explain what needs to be done and what should be the way ahead for India.

Conclusion:

India must seek to maintain independence of its foreign policy and security choices reflective of its civilizational ethos, while working in partnership with all friendly countries on issues of common interest.

Introduction:

India has one of the longest and most varied of international borders. Historical and political reasons have left India with an artificial unnatural border. Border Management is an integral approach towards borders in which along with security enhancement, infrastructure & human development is undertaken. The challenge of coping with long-standing territorial and boundary disputes with China



and Pakistan, combined with porous borders along some of the most difficult terrain in the world, has made effective and efficient border management a national priority.

Body:

Issues and threats posed by each neighboring country to India:

Indo-Pakistan Border:

- Indo-Pakistan Border (3,323 Km) runs along the states of Gujarat, Rajasthan, Punjab and J&K. Direct accessibility of the borders and some technological developments enabling quick passage of information and transfer of funds has changed the focus and tenor of border security.
- Cross-Border Terrorism from Pakistan has exacerbated due to non-recognition of boundaries by its terrorist groups and their success in acquiring legitimacy due to religious or ethnic identity.
- Inadequate Cooperation from Pakistan has made the management of border further difficult for India.

Indo-Bangladesh Border:

- The Indo-Bangladesh Border (4,096 Km) passes through West Bengal, Assam, Meghalaya, Tripura and Mizoram.
- The entire stretch consists of plains, riverine belts, hills & jungles which make illegal migration very easy.
- Illegal Migration across this border poses serious security threats and acts as a fertile ground for organisations like the Inter-Services Intelligence of Pakistan to penetrate and expand their activities.
- Also, poor law and order situation at the border, has led to smuggling of arms and drugs. Supply of arms help in sustaining any conflict.

Indo-China Border:

- India shares a long land border with China (3,488 Km) in the Indian states of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim and Arunachal Pradesh.
- Although this border remains relatively aloof from illegal migrations, this border remains a cause of constant vigil for Indian forces.
- India has a longstanding border dispute with China running back to British era in Aksai Chin and Arunachal Pradesh.

Indo-Nepal Border:

- India-Nepal Border (1,751 Km) is an open border in the sense that people of both the countries can cross it from any point, despite the existence of border check posts at several locations.
- Anti-India organizations use this border to plant their people in the territory of India.
- Also, smuggling of gold, small arms, drugs and fake currency helps terrorists in executing an attack.

Indo-Bhutan Border:

- This border (699 km) passes through states of Assam, Arunachal Pradesh, West Bengal and Sikkim.
- Illicit establishment of camps by militant outfits in the dense jungles of south-east Bhutan helps insurgents from India in executing anti-India activities.

**Indo-Myanmar Border:**

- The northeast states of Arunachal Pradesh, Nagaland, Manipur and Mizoram share the border with Myanmar (1,643).
- Some of the insurgents groups like the National Socialist Council of Nagaland (NSCN) and ULFA operate from Myanmar, which threatens the security of India as well as Myanmar.

India has had to deal with numerous challenges with respect to border management such as:

Current fence:

- The present one has a high rate of degradation due to snow and has to be repaired after every season which costs about Rs. 50-60 crore every year
- Over time infiltrators have devised ways to cross it.
- India's internal security challenges are inextricably linked with border management. This is so because Indian insurgent groups have for long been provided shelter across the nation's borders by inimical neighbours.

No real-time coordination:

- Due to the lack of understanding of military issues among the decision-making elite, India's borders continue to be manned by a large number of military, paramilitary and police forces
- Each of which has its own ethos and each of which reports to a different central ministry at New Delhi, with almost no real coordination in managing the borders.
- Border management is designed for a 'firefighting' approach rather than a 'fire prevention' or pro-active approach
- It is based on a strategy of 'reaction and retaliation' rather than on a holistic response to the prevailing environment, resulting in stress and decision making problems at the functional level.
 - Perennial and Seasonal Rivers via which terrorists can infiltrate.
 - Un-demarcated boundaries with overlapping claims cause constant friction along borders.
 - Mountainous and Hilly terrain especially in North Indian borders which are snow clad and inhabitable during winter season.
 - Unilateral actions by some nations to change the status quo in their favour.
 - Little or no support from counterparts of neighbouring nations and in some cases active support by cross border elements to illegal activities.
 - Cultural, ethnic and linguistic affinity across borders and clan loyalties
 - Multiple agencies are involved in border management, lack of Inter agency cooperation and coordination
 - Support of state and non-state actors to aid infiltration, smuggling, trafficking etc.

Significance of the relations with neighbor countries



- India advocates the policy of constructive engagement, despite such serious provocations as have been in the past (attack on Parliament, Mumbai terrorist attacks etc). It believes that violent retaliation and confrontation can only complicate the matters. This applies in particular to Pakistan- the origin of State-sponsored terrorism targeted at India.
- India adheres to its benign and noble policy of non-interference into internal affairs of other countries in the region. However, if an act – innocent or deliberate – by any country has the potential of impinging upon India's national interests, India does not hesitate in quick and timely intervention.
- Foreign policy in India by and large enjoys national consensus. At times, however, there are instances when it appears that the foreign policy is being held hostage to domestic regional politics. Bangladesh and Sri Lanka are the most glaring examples.
- India has endeavoured to deal with the government-of-the-day, be it a democracy, monarchy or military dictatorship, insisting that the choice of the form of government is best left to the people of the country concerned.
- India has skilfully used its policy of non-prescriptive development assistance as its soft power since early 1950s. In return India has sought "good will" and "friends of India". In a slight departure India is gradually switching over from pure charity to a judicious mix of outright grants and soft loans linked to project/commodity exports
- Finally, India is ready to go an extra mile in seeking the integration of the region. As often cautioned by the International Financial Institutes, only through regional cooperation can the South Asia be a part of Asian century.

Solutions for addressing cross border terrorism:

- Infrastructure along with border has to be improved – rail connectivity along with road connectivity has to be provided for quick mobilization.
- Building of additional checkpoints and Border posts along major and minor trade routes connected with borders
- Building of floating bridges, walls & electrical fences where there is high probability of infiltration.
- Taking up of joint Border management with Countries like Myanmar, Bhutan and Nepal.
- Improving healthcare, physical infrastructure and digital connectivity in villages around borders thus making them stakeholder in Border Management.
- Madhav Godbole task force recommendations on border management need to be implemented.
- It had recommended that the CRPF should be designated as the primary national level counter-insurgency force. This would enable the other central paramilitary forces like the BSF and Indo-Tibetan Border Police to return to their primary role of better border management.
- It had also recommended that all paramilitary forces managing unsettled borders should operate directly under the control of the army and that there should be lateral induction from the army to the paramilitary forces so as to enhance their operational effectiveness.
- The principle of 'single point control' must be followed if the borders are to be effectively managed.
- The advances in surveillance technology, particularly satellite and aerial imagery, can help to maintain a constant vigil along the LAC and make it possible to reduce physical deployment.

Conclusion:

Keeping a strong vigil on its border is very important for any nation to check any kind of illegal activities or intrusion through them. For India, the task becomes difficult where terrain and climate



is very complex across some of its border areas. Focussing on improved technology will help in making the task easier for the security forces and make its borders more secure.

Challenges to internal security through communication networks, role of media and social networking sites in internal security challenges, basics of cyber security; money-laundering and its prevention.

Discuss the case of Cyber bullying across the Lifespan of Education:, explain the issues and Interventions required to overcome it from family and schooling.(250 words)

Indian Express

Why this question:

The question is straight forward and is around discussing the case of Cyber bullying.

Key demand of the question:

Explain what cyber bullying is and discuss the importance of tackling it at the level of education and upbringing of values by the family.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Define cyber bullying.

Body:

Cyber-bullying, in simple terms, may be defined as the act of harassment, intimidation, threatening of another person, via the cyber-space.

Explain the influence of social media on children in general.

Discuss the ill effects of cyber bullying, causes and effects.

Discuss what can be done to overcome the same.

Signify the role of family and schooling in overcoming the cyber bullying.

Conclusion:

In short, social media has had a mixed effect on children. Proper supervision by parents and teachers, and regulating the time spent on internet through various productive activities and hobbies might be regarded as some of the ways in which the ill effects of social media on children might be minimized.

Introduction:

Cyber Bullying:

- Cyberbullying or cyber harassment is a form of harassment that takes place over digital devices like cell phones, computers, and tablets.
- Cyber bullying can occur through SMS, Text, and apps, or online in social media, forums, or gaming where people can view, participate in, or share content.
- It includes sending, posting, or sharing negative, harmful, false, or mean content about someone else.
- It can include sharing personal or private information about someone else causing embarrassment or humiliation.
- Some cyber bullying crosses the line into unlawful or criminal behaviour.

Body:

Reasons for increasing Cyber bullying:



- The increasing access to affordable data service has given rise to these faceless evil worldwide – young children, in particular teenagers, being the most vulnerable victims.
- The language and content of Web series: The certain shows running on amazon prime or Netflix are not appropriate for teenagers. Teenagers try to adapt that language used in the TV series or shows.
- Nuclear families and isolation of children: Most of the families in India are nuclear families and parents are going to their job regularly so the children's get neglected and isolated. Therefore, many are not able to identify what the child is going through.
- Cyber bullying, under the Information Technology Act, is not an offence. The Act was last amended in 2008. Since then, social media has exploded in the country. The ground reality of 2017 is vastly different
- Cyber bullying does not qualify in the category of cognizable criminal offences. Only if it is in aggregated form for example, someone created fake profile of others and used that account for detrimental things that only qualifies as offence of impersonation.
- Most of the time the victim is a juvenile but at the same time the person who is committing this crime is also a juvenile and therefore this is covered under juvenile justice act. So the role of police authority in the conventional manner is limited hence registering an FIR and arresting the juvenile, these scenarios are not possible
- Under-reporting of cases. The reasons are People don't want unnecessary media publicity; the current process is very slow; and there is low confidence in the ability of the system
- The US has often failed to share information vital to dealing with cybercrime. It denies access to data held by companies such as Google and Facebook
- Because Cyberbullying is difficult to track, many victims feel helpless and unable to cope with it, especially if the bullying is personal and long-drawn

Government Initiatives against Cyberbullying:

- Guidelines by NCERT: Because of lack of awareness about cyber bullying among the children's, teachers as well as the parents, NCERT came up with three guideline booklets one for teachers one for school and one for students. For students it's in the form of DO's & DON'Ts.
- Government of India is come up with ministry of home affairs Cybercrime reporting portal gov.in.
- For generating awareness in state of Delhi, Delhi police has come up with an initiative in which Police visits school administration to get aware of cyber bullying and also engage workshops for computer teachers.

Other measures needed:

- **Family/home measures:**
 - Parents can make a vast and positive difference by talking with their children. Like sexuality education in general, the topic of pornography is not one big talk but rather a series of discussions that easily can arise from the content of songs, music videos, video games, movies and unintended or intended exposure to sexually explicit images.
 - Parents can help their children develop a critical eye when viewing media, so they see the lies, and differentiate that fiction from the joy in loving equitable and respectful relationships.



- Parents need to explain to children that the same rules apply during interactions online, as they do in person
- **Government level:**
 - **National Cyber Crime Reporting Portal** shall be designated as the national portal under-reporting requirements in the POCSO Act in case of electronic material
 - Union Government shall be empowered through its designated authority to block and/or prohibit all websites/intermediaries that carry child sexual abuse material
 - Law enforcement agencies should be permitted to brake end to end encryption to trace distributors of child pornography.
- **Use of Artificial intelligence:**
 - Tools can be developed which can analyse the behaviour of every internet user. So it can help prevent the user from falling into cyber bullying.
 - Developing some mobile applications that can alert parents if the child is under threat of cyber bullying.
 - Prevent malware attacks by tying up with antivirus agencies.
- **Academic measures:**
 - School diaries should carry an anti-bullying pledge.
 - Schools shall undertake training programmes for parents at least twice a year, making them aware of hazards for children of free access to smartphones, internet at an early age.
 - The subjects related to cyber bullying and cyber security should be made mandatory instead of only guidelines.
 - In school there should be cyber cell where one could report their grievances whether by its name or anonymously.
- Multipronged approach to handle cases:
 - Need to handle the cases of cyber bullying through multipronged approach such as counselling through Psychiatrist, approaching police, etc.

What do you understand by Juice jacking? How big is it a threat? Discuss means and ways to prevent the same.(250 words)

[Times of India](#)

Why this question:

Public USB power charging stations are now ubiquitous in the spaces business travelers frequent, including airports, hotels and other points of transit or accommodation. That's why every business traveler and organization needs to understand that these resources could be hijacked by cybercriminals as a conduit for delivering malware or stealing sensitive data.

Key demand of the question:

Discuss in detail the underlying concept of juice jacking, explain in what way it poses threats on citizens and suggest means to overcome and prevent the same.

Directive:



Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

First define what is meant by Juice Jacking.

Body:

Juice jacking is a type of cyber-attack involving a charging port that doubles as a data connection, typically over USB. This often involves either installing malware or surreptitiously copying sensitive data from a smart phone, tablet, or other computer device.

Discuss in short then the history of Juice Jacking.

Discuss how to prevent juice jacking; Don't use public charging stations that offer USB ports. Use your own AC charging adaptor and your own cables to plug into electrical outlets. Carry a high-quality, certified mobile battery so you don't have to rely on power sources of opportunity.

Don't use somebody else's PC for charging your mobile device.

Use a USB data blocker dongle, which is a product that disables data transfer for USB cables etc.

Conclusion:

The bottom line is that juice jacking is either a rare or currently unpracticed attack that's brimming with potential for cybercriminals and spies. Because the remedies are so easy and inexpensive and tend to offer other benefits as well, it makes sense to integrate anti-juice jacking measures into the organization's overall cybersecurity plans.

Introduction:

Juice jacking is a type of cyber-attack involving a charging port that doubles as a data connection, typically over USB. This often involves either installing malware or surreptitiously copying sensitive data from a smart phone, tablet, or other computer device.

The power/data cable that we see in public charging stations, provides unauthorized access to attackers during the charging process; leveraging illegitimate access to get our personal information taken away.

Body:

Threats posed:

- **Data theft:** During the charge, data is stolen from the connected device. Once the device is plugged-in and connection is established, it either installs malware or secretly copies sensitive data from a smartphone, tablet, or any other computer device.
- **Malware installation:** As soon as the connection is established, malware is dropped on the connected device. The malware remains on the device until it is detected and removed by the user. The attack could be as simple as extracting all your contact details and private pictures or can be an invasive attack of injecting malicious code directly into your device which can then copy all your passwords of financial data.

Measures to protect from juice jacking:

- **Keep your devices fully charged or carry personal charger/power bank with you.** Alternatively, always keep your charger and power bank in your bag for charging to maintain control over the data port.
- **Lock Your Phone:** When your phone is locked, I mean truly locked and inaccessible without the input of a PIN or an equivalent pass code, it cannot be paired with any device. Be cautious not to



use your face/finger print id for even a second since pairing can happen within a flick of a second.

- **Switch off or Power the phone down:** This technique only works on few mobile models as some phones, despite being powered down, still powers on the entire USB circuit and allows access to the flash storage in the device.
- **Use specialized cables:** You can buy a special USB cable that doesn't have pinout connections for pins 3 and 2. Therefore it's impossible to transmit data across the connection.
- **Use a USB condom:** It is a device that goes between your normal data charging cable and a USB port to block data transfer through the connection. USB condoms are adaptors that allows power transfers but don't connect the data transfer pins. You can attach them to your charging cable as an "always on" protection.

Conclusion:

The best defence against any such attack is awareness. Follow the above tips, and avoid plugging your mobile into unknown charging stations the same way you avoid opening attachments from unknown senders.



INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION

INSTA SECURE SYNOPSIS

MAINS 2020

GS-III

MARCH 2020



Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

“The coronavirus is driving the world into a recession, and India cannot be insusceptible to it”, do you agree with the statement? Critically analyse. (250 words)

Reference: [The Hindu](#)

Why this question:

The article presents a detailed discussion on the global spread of the coronavirus and the economic impact.

Key demand of the question:

The answer must discuss the impact of the Corona virus on the economy of the world in general and in what way India is no exception to it.

Directive:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgment.

Structure of the answer:

Introduction:

Briefly explain the spread and coming of the corona virus outbreak.

Body:

Discuss the global impact – The virus has crippled global supply chains, hit air travel and affected markets.

The Chinese economy is in deep trouble due to the impact of the virus and the virus appears all set to adversely impact the U.S. economy, the global economic engine.

S. companies ranging from Apple and Nvidia to Procter & Gamble and Adidas are facing troubles because of their large exposures to the Chinese market or their reliance on suppliers from China. A slowdown or worse, recession, in the two global economic engines may push the entire world economy into recession.

Markets reflected these concerns as important indices plunged and investors pulled out money.

Unlike a financial crisis which can be sorted out with measures such as rate cuts and bail-outs, the present crisis is immune to financial solutions.

Then discuss specifically the impact on Indian economy.

Conclusion:

Conclude with what needs to be done to overcome the ill-effects of such a global epidemic.

Introduction:

The human cost of the coronavirus outbreak is climbing across China and beyond. The economic cost is also mounting. That damage is, for the most part, not due to the virus itself, but due to efforts to prevent it from spreading. The global economy appears headed for uncharted, troubled territory thanks to the second wave of the coronavirus that has now spread to countries as far apart as Nigeria and New Zealand.

Body:

Economic effects of the coronavirus on the Indian Economy:

- The impact on India is felt through supply chain disruptions from China as well as regional players, who in turn are net importers from China.



- India's annual trade with China is around \$90 billion—India imports goods worth \$75 billion and exports goods worth \$15 billion.
- These include 'electrical and telecom machinery,' 'organic chemicals,' 'nuclear reactors,' 'plastics' and 'pharmaceuticals.' The first four of these five groups also make up India's top imports in 2019 fiscal year.
- On account of factory closures in China, supply chains would get disrupted and this could result in shortages, especially of electronic goods and medicines.
- A key supplier of generic drugs to the global market, Indian companies procure almost 70 percent of their active pharmaceutical ingredients for their medicines from China.
- Trade deficit prints may be lower for the next couple of months. We may see the price of consumer durables inch higher. This would drive core inflation higher, which is showing signs of bottoming out.
- This, in turn, could make it more difficult for the MPC to provide further monetary policy stimulus. January's core inflation print came in at 4.2 percent compared to December's 3.8 percent.
- Fall in global crude prices on account of an anticipated slowdown in demand would also result in a lower import bill. The sectors that are likely to be impacted on the export front are diamonds, leather and petrochemicals
- Imports are likely to contract more than exports and therefore, from a current account perspective, the outbreak could actually be rupee-supportive.
- Offshore fundraising by Indian corporates is also likely to slow down, as raising money onshore has become cheaper after the LTRO announcement by the RBI
- The retail mobile trade, for instance, is almost entirely dependent upon China. While every month, old models of mobile phones would see a drop in prices as new models are supplied, in the current month, no such drop in prices has taken place and the supply of goods is being rationed by companies
- The toy market sees nearly 80% of its demand met by products made in China, while only 20% is met by Indian manufacturers
- Many items, like belt buckles, Christmas lights, specific parts of gas stoves, are only made in China. The prices of most of these goods had already seen an upward correction, and in some cases it is as much as 50%
- The travel and tourism sector will be affected badly. Several overseas airlines have stopped flights to China and international hotel chains have also been offering refunds. Most of the Chinese citizens are avid travellers, hence the tourism in other countries might feel the ripple effect.

Global impact:

- The world's economy could grow at its slowest rate since 2009 this year due to the coronavirus outbreak, according to the Organisation for Economic Cooperation and Development (OECD). The OECD has forecast growth of just 2.4% in 2020, down from 2.9% in November 2019
- Some people are choosing to avoid activities that might expose them to the risk of infection, such as going out shopping. Restaurants, car dealerships and shops have all reported a fall in customer demand.
- The number of cases diagnosed is increasing around the world every day. Thus, many countries have introduced travel restrictions to try to contain the virus's spread, impacting the travel industry massively.



Some shining light for India:

- Indian companies are not major participants in the global supply chains originating in China.
- The crude oil prices are slipping which is good news for the macro economy and inflation.
- The government needs to watch the developing situation and, for now, do all it can to support industries that are reliant on Chinese inputs.

Conclusion:

It is critical to mount a coordinated and coherent response. This not only means involvement of both public and private sectors but also allopathic and non-allopathic medical systems, different departments such as police, fire, transportation, tourism, food supplies and other sectors.

Discuss the concept of “Limited liability partnership” while bringing out the benefits and concerns associated with a special reference to Indian economy. (250 words)

Reference: [Financial Express](#)

Why this question:

The government is set to introduce an amnesty scheme for Limited Liability Partnership (LLP) firms for delays in mandatory filings which could benefit 20-25 per cent of the 1.25 lakh LLPs registered in the country. Thus the question.

Key demand of the question:

The answer must discuss the significance concept of “Limited liability partnership” while bringing out the benefits and concerns associated with a special reference to Indian economy.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly define what LLP is.

Body:

Start with the recent decisions made with respect to the move – it is aimed at bringing non-compliant LLPs into the legal fold. Explain – LLP is an alternative corporate business firm that gives the benefits of limited liability of a company and the flexibility of a partnership. Highlight the key features of LLP.

Discuss that ; LLP form is a form of business model which – is organized and operates on the basis of an agreement.

Provides flexibility without imposing detailed legal and procedural requirements.

enables professional/technical expertise and initiative to combine with financial risk taking capacity in an innovative and efficient manner.

List down the concerns associated while suggesting way forward.

Conclusion:

Conclude by reasserting the significance of such concepts applied to the economy.

Introduction

Limited liability Partnership, is an alternative corporate business vehicle that provides the benefits of limited liability of a company, but allows its members the flexibility of organizing their internal management on the basis of a mutually arrived agreement, as is the case in a partnership firm.

Body



The LLP as a separate legal entity, is fully liable of its assets but liability of the partners is limited to their agreed contribution in the LLP.

- It limits the liability of partners as far as civil cases are concerned.
- In such a partnership, partners can't be held liable for another's misconduct or negligence.
- It is governed by the provisions of the **Limited Liability Partnership Act, 2008**. The LLP Act 2008 confers powers on the Central Government to apply provisions of the Companies Act, 1956 as appropriate.
- Central Government also has powers to investigate the affairs of an LLP, if required, by appointment of competent Inspector for the purpose.
- Registrars of Companies (ROC) is appointed under Companies Act and is under Ministry of Corporate Affairs.
 - Its primary duty is to register companies and LLPs under respective states and UTs and ensure their compliance with statutory requirements.

Benefits of LLP

- **Convenience:** It is easy to start and manage a business, like entrepreneurs. **LLP agreements** are customized in according to meet the needs of partners concerned. There is fewer formalities in areas of legal compilation, annual meeting, resolution as compared to any other **Private Limited Company**.
- **No minimum capital requirement:** LLP can be started with the minimum amount of capital money. Capital may be in the form of tangible, movable asset like Land, machinery or intangible form.
- **Lower Registration cost:** This requirement in the case of a Private company (Requirements for Registration of a Private Company) and Public Company (Requirements for the registration of a Public Company) is Rs. 1, 00,000 and Rs. 5,00,000 respectively whereas no such mandatory capital requirement specified under the LLP.
- **Number of owners:** LLP may have partners varying from 2 to many. There is no limit for partners in LLP. An LLP requires a minimum 2 partners while there is no limit on the maximum number of partners in contrast to a private company wherein there is a restriction of not having more than 200 members.
- **No compulsory audit:** LLPs are not required to audit the accounts. Any other company (Public, Private) are mandated to get their accounts audited by the auditing firm. LLP is required to audit their account in the following situation: When the contributions of the LLP exceeds Rs. 25 Lakhs, or When annual turnover of the LLP exceeds Rs. 40 Lakhs
- **Low tax burden:** LLPs are also tax efficient as they are exempt from dividend distribution tax and minimum alternative tax.
- **Low compliance burden:** LLP have to face less compliance burden as they have to submit only two statements i.e. the Annual Return & Statement of Accounts and Solvency. Whereas in the case of private company, at Least 8 to 10 regulatory formalities and compliances are required to be duly completed. Read Annual Cost Comparison of Private Limited and LLP.
- **Easy Transferable Ownership:** It is easy to become a Partner or leave the LLP or otherwise it is easier to transfer the ownership in accordance with the terms of the LLP Agreement.

Concerns Regarding LLP

- **Penalty for non-compliance:** Even if an LLP does not have any activity, it is required to file an income tax return and MCA annual return each year.



- In case an LLP fails to file Form 8 or Form 11 (LLP Annual Filing), a **penalty of Rs.100 per day**, per form is applicable.
- There is no cap on the penalty and it could run into lakhs if an LLP has not filed its annual return for a few years.
- **No equity investment:** An LLP does not have the concept of equity or shareholding like a company. Hence, angel investors, HNIs, venture capital and private equity funds cannot invest in an LLP as shareholders. Thus, most LLPs would have to rely on funding from promoters and debt funding.
- **Blanket tax rate:** The income **tax rate for a company** with a turnover of upto Rs.250 crores is 25%. (Further reduced in 2019 for new companies involved in manufacturing).
 - However, LLPs are taxed at a **30% rate** irrespective of the turnover.

Conclusion

India has around 1.25 lakh active LLPs, of which a majority are in business services, followed by trading, manufacturing and real estate & renting. Ease of doing business and making regulations easier for LLP's can go a long way in increasing efficacy of various sectors of Indian Economy.

Discuss the role of women in evolving a knowledge economy and narrowing the gender inequality in the Indian context. (250 words)

Reference: [Live Mint](#)

Why this question:

The article discusses at length the possible contributions that the women are making to the knowledge economy in the country.

Key demand of the question:

The answer must discuss the significance of women in evolving a knowledge economy and narrowing the gender inequality in the Indian context.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain what knowledge economy are.

Body:

Highlight that the Indian economic success requires scientific skills that can foster a knowledge economy, the emergence of which depends on how gender balanced the workforce is. Explain the present scenario – list down the challenges that women face in contributing to the knowledge economy. Then explain why women are key to the economy despite the above mentioned concerns and challenges? Highlight their potential.

Conclusion:

Conclude by policies of the government in this direction; explain what should be done to harness the contribution of women to the knowledge economy.

Introduction

“You can tell the condition of nation by looking the status of the women” – Pt. Jawaharlal Nehru

The knowledge economy is a system of consumption and production that is based on **intellectual capital**. In particular, it refers to the ability to capitalize on scientific discoveries and basic and



applied research. In a knowledge economy, a significant component of value may thus consist of intangible assets such as the value of its workers' knowledge or intellectual property.

The World Bank defines knowledge economies according to four pillars:

- Institutional structures that provide incentives for entrepreneurship and the use of knowledge
- Availability of skilled labor and a good education system
- Access to information and communication technology (ICT) infrastructures
- A vibrant innovation landscape that includes academia, the private sector, and civil society

Body

Women in Knowledge Economy in India

A rapidly growing India requires a highly skilled technical workforce that is crucial for developing a knowledge economy. Unfortunately, half the scientific potential of India i.e. women in science—is squandered.

- Women make up only **14% of the 280,000** scientists, engineers, and technologists in research and development institutions across the country, according to a recent study.
- Over the years, the interest to study STEM has increased. According to a MasterCard study, over 85% of girls between the ages of 12-14 want to pursue studies in these fields.
- In the field of Artificial Intelligence, the gender gap stands at 72% (only 22% are women)

Challenges faced by women

- When highly qualified women drop out of the workforce, it results in considerable depletion of national resources and our ability to flourish in knowledge economy.
- **Gender based social roles** are imposed on women. Stereotypes encountered by girls to the family-caring responsibilities.
- Women continue to face the same kind of discrimination at work as they face in society.
 - According to a recent Accenture research report, the gender pay gap in India is as high as **67 percent**.
 - It is certainly more challenging for women pursuing science to excel due to the various hurdles they face and the bias that operates against them in almost all institutions
- **Peer-reviewed research reports** have indicated that women scientists earn less, have less prestige within departments, have less lab space, are offered inadequate jobs on graduating with science degrees and have more teaching responsibilities.
- They also face greater difficulty in receiving grants, and therefore apply for fewer grants in the first place.
 - It is imperative to tackle these issues with vigour if India is to take its rightful place among developed nations.
- **Women tend to lack access to informal networks** that provide opportunities to work in high-profile projects, which include attending conferences abroad or on-the-job opportunities.
- When it comes to **peer recognition**, women are at loss as they muster less support.
- The most important one is mindset, which has been targeting women right from their cradles.



- **Unequal Opportunity** : Women have less access to resources — such as property, financing, technology and education — needed to support active engagement in science, technology, engineering, research and innovation. As a result, their presence in employment, entrepreneurship and research is lower than men's.
- **Due to family pressure and household responsibilities**, many female graduates fail to convert their degree into a fulfilling career or stop pursuing managerial and leadership roles.

Therefore, they **lack the work experience** that would enable them to rise up the ranks and provide access to the wide range of developmental models that could **build the credibility they need to advance**.

Women are key to economic growth

- India could boost its growth by **5 percentage points to 9 percent** per year if around 50% of women could join the work force. Even more if women are educated and are included in the knowledge economy, as per the World Bank
 - Conversely, it is estimated that **gender gaps cost** the economy **some 15 percent of GDP**.
- It is estimated that companies with three or more **women in senior management functions** score higher in all dimensions of organizational performance.

Way forward

- Educational institutes and the community should encourage girls from primary school to select a STEM field for their higher education.
- In our educational system, there is too much of categorisation that starts too early. Science including physics, chemistry, mathematics and biology should be taught for all up to the 12th grade.
- Steps can be taken to strengthen technical education in women's institutions.
- Special managerial skills through training and development programmes.
- Corporates and public sector must increase their gender diversity and target must be at least 50% of the workforce.
- National level science conferences that are women centric, highlighting achievements of women in knowledge economy will prove to be an inspiration.
- Handholding programmes by government to provide tangible support to women entrepreneurs.
- Strengthen the maternity benefits and aiding women to ensure work life balance.
- The importance and benefits of team work, networking and being proactive should form an important part of soft skill training offered for women.

Conclusion

Science needs the **best scientists**, and a knowledge economy needs a **gender-balanced workforce**. This can only be attained by **realizing the full potential of women**. Apart from being wasteful and unjust, the **under-representation of women in science** threatens the goal of achieving excellence in the field.

To tackle this, we must set an **ambitious target of reaching out to 1 million young girls each year**, and encourage them to take up science and make a difference. A **national convention of women** in science must be held annually, with a specific focus on discussing and building general awareness around the major challenges that women face.



Explain the concept of Agroforestry. Discuss how agroforestry could solve climate crisis. (250 words)

Reference : [Down to Earth](#)

Why this question:

Agriculture and climate change are deeply intertwined. Agriculture is responsible for almost 30 per cent of global greenhouse gas (GHG) emissions and is the root cause of 80 per cent of tropical deforestation. Intensive agriculture — characterised by monocultures and aimed at feeding farm animals — is one of the sectors that generates the highest amount of CO₂ emissions.

Key demand of the question:

One must discuss in detail the concept of Agroforestry. The benefits of Agroforestry and how it can help tackle the climate change crisis being faced across the globe and India

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In brief explain the scenario of how agriculture and monoculture has led to increasing emissions of GHG's and adding to the climate change crisis

Body:

Explain the concept of Agroforestry in detail.

Discuss how Agroforestry can help mitigate the climate change effects.

Use case studies which has proven to be successful across the globe to substantiate your answers.

Give a brief idea about the agroforestry potential in India.

Conclusion:

Conclude with a way forward.

Introduction

Agroforestry is a collective name for sustainable land-use systems involving trees combined with arable crops and/or livestock on the same unit of land, either spatially or temporally. Agroforestry can be classified into Agrosilvicultural systems, Silvopastoral systems and Agrisilvipastoral systems.

Body

Features of Agroforestry

- It has more than one crop at a time in which atleast one crop must be tree crops
- It produces multiple outputs such as food, fodder, fuel and timber.
- Crops are arranged in a multi-storey in such a way that it reduces competition among plants

Agroforestry Classification

▪ **Agrisilvicultural systems:**

- Arable crops are suitably mixed with tree crops under Taungya System.
- In another method, fuel wood species are inter-planted around agricultural lands. This system acts both as fence as well as shelter-belts besides providing fuel wood to local community. Eg : Acacia Nilotica, Dalbergia sisoo (Shisham) etc.
- Alley cropping where woody plants are grown in rows with annual crops is also a type under this system.



- **Silvipastoral system** : It refers to the production of woody plants in pasture lands.
 - Eg : Live fence of fodder trees and hedges.
- **Agrisilvipastoral system**: It refers to the production of woody perennial along with annuals and pastures.

Agroforestry and solution to Climate crisis

Farming is responsible for almost 30% of global greenhouse gas emissions. Agriculture is the root cause of 80% of tropical deforestation. Regenerative agroforestry, an agricultural method that mimics natural ecosystems, could help reverse these trends.

- **Carbon Sink** : Regenerative agroforestry sequesters significantly more carbon than industrial agriculture and can help to restore degraded land. According to UN Scientists, restoring 900 million hectares could stabilize global GHG emissions for 15-20 years. With agroforestry, we can transform degraded land into food-growing carbon sinks.
- **Microclimate** : It improves the microclimate of a region by lowering of soil temperature, reduction of evaporation and maintenance of soil moisture.
- **Improve soil management**; deep-rooting trees improve soil stability; trees increase the soil's ability to absorb and retain water, produce nutrients, improve and maintain organic soil matter and manage soil temperature.
- **Improve carbon sequestration**; during the photosynthesis process, the tree absorbs carbon from the atmosphere. Studies have shown that a tropical tree absorbs about 22kg of carbon each year. By using this practice, farmers can significantly mitigate climate change;
- **Lessen** the risk of **salinization** in coastal areas
- **Protecting the biodiversity** : The diversity of plants creates biomass throughout the year, fertilizing the soil and increasing crop yields while providing fodder for livestock. Moreover, planting trees on a farm protects crops from wind and sunlight. It increases efficiency of land and eliminates need to expand into biodiversity rich areas.

Conclusion

Agroforestry is a resilient and future-proof agricultural method that could help solve the climate crisis. This smart farming system enables economically viable production while restoring land, mitigating climate change, protecting biodiversity and enhancing food security for growing populations. It's a nature-based practice that is globally applicable and an affordable promising solution to today and tomorrow's biggest global challenges.

Discuss the factors that ail India's Free Trade Agreements. Explain what factors are necessary for efficient functioning of trade regime. (250 words)

Reference: [Financial Express](#)

Why this question:

The article brings out the factors that plague India's FTAs.

Key demand of the question:

The answer must discuss the factors that ail India's Free Trade Agreements. And bring out the factors that are necessary for efficient functioning of trade regime.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

**Introduction:**

Briefly highlight the significance of trade in general.

Body:

Explain the factors that are ailing India's FTA.

Discuss why India is skeptic of free trade and is opting for protectionist policies.

Bring out the defects in the current regime.

Suggest what needs to be done.

Conclusion:

Conclude with way ahead.

Introduction:

Free trade agreements are a key to creating seamless trading, but there are genuine concerns when India signs up new such pacts because of past experience. However, a growing wave of protectionism has dominated global trade of late. While it is difficult to assess whether this will lead to a significant shift in the global trade paradigm, a review of India's existing free trade agreements (FTAs) before negotiating new ones is necessary.

Body:

So far, India has signed 14 FTAs. The impact of all these FTAs on the economy, and especially on the agriculture sector has been disastrous. Among these, the India-Sri Lanka and ASEAN-India FTAs had the greatest negative impact on the Indian agriculture sector. India decided against joining RCEP at the eleventh hour. The official version is that India runs a large trade deficit with RCEP countries, and was expecting specific protection for its industry and farmers from a surge in imports, especially from China.

Factors that ail India's Free Trade Agreements:

- The poor negotiations of FTAs under previous governments have harmed Indian industry, and led to a distorted trade balance.
- In general, an FTA, by changing the rule of the existing trade regime, may increase the transaction cost of trading turns out to be inefficient due to additional complexity.
- The concerned officials for enforcing the rules are not well-versed with their intricacies. Further, policymakers hardly pay attention to this.
- Another shortcoming in the architecture of India's FTAs is the avenue of discretionary power of officials in judging tariff concession claims. Both these add to transaction costs.
- Packaging and labelling issues are also not well-defined under FTAs, raising the compliance cost of availing concessions under the agreement
- High cost of packaging affects competitiveness of exports in the international market.
- shortage of proper storage facilities at ports, especially for items requiring cold storage, the possibility exists that traders suffer loss due to damage of goods.
- Certification is an issue that needs attention at the time of signing of FTA if the interests of traders/manufacturers are to be protected.

Case study: *India-Sri Lanka FTA (ISFTA), one of the earliest FTAs India signed, and for which more evidence is available from our recent in-depth study. In 2005, 98% of Sri Lankan exports availed the FTA route. This has declined to about 50% in recent years. On the other hand, only 13% of India's exports are routed through FTA. Surely, no one expects this trend to be exhibited after signing an FTA. Some argue that this fall in the share of utilization of the FTA route is due to the implementation of the SAARC Free Trade Agreement (SAFTA) post 2006, and most Indian exporters are using the SAFTA route. This logic falls apart since the rate of tariff concession is higher under ISFTA (up to*



100%) than under SAFTA (up to 20%). The question, then, is why exporters on either side are reluctant to avail benefits of ISFTA.

Measures needed for efficient functioning of FTA's:

- policymakers must pay enough attention to creating a complementary ecosystem, in terms of trade facilitation measures for efficient functioning of the trade regime, at the time of signing of FTA.
- labelling regulations should be clearly defined and made available to traders, it makes compliance easy, and would not cause problems in clearing shipments
- Since government authorities function at their own pace, there is a need for a system of third-party certification from private entities in partner countries.
- The FTAs can ensure market access to only the right quality products made at competitive prices.
- Improvement in firm-level competitiveness is a must.
- Negotiating bilateral FTAs with countries where trade complementarities and margin of preference is high may benefit India in the long run.
- Also, higher compliance costs nullify the benefits of margin of preference. Thus reducing compliance cost and administrative delays is extremely critical to increase utilization rate of FTAs.
- Proper safety and quality standards should be set to avoid dumping of lower quality hazardous goods into the Indian market.
- Circumvention of rules of origin should be strictly dealt with by the authorities.
- Well-balanced FTA deals addressing the concerns of all the stakeholders are the need of the hour.

Conclusion:

There is a need to revisit all FTAs, and introduce an autonomic decision-making process to strengthen principle-based economic judgments, thereby reducing transaction costs of trading.

Should distressed private banks be saved by PSBs? Do you agree to the fact that larger PSBs are being made more fragile by involving them in bailouts of their public sector or private peers? Discuss. (250 words)

Reference: [The Hindu](#)

Why this question:

A day after the government imposed a moratorium on the financially troubled Yes Bank last week; the Reserve Bank of India announced a draft restructuring plan that entails the State Bank of India acquiring a 49% stake in the private lender. Thus the question.

Key demand of the question:

The answer needs to explain why the private banks need to be saved by the public sector banks, what are the issues and challenges involved and what an optimal solution to address such a situation is.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In short present the background of the context in question.

Body:



First explain why such banks should be saved; list the reasons. As per the Financial Stability Report of the RBI, the level of inter-connectedness within the financial services ecosystem is deep. While after the global financial crisis, the idea was always to have no bank which is too big to fail.

The systemically important banks are banks which are tracked more carefully and which are also subject to higher capital requirements under Basel III. But that is not to say that banks which are relatively smaller in size, such as Yes Bank, do not pose systemic risk and therefore, should not be rescued.

Then explain what should be done –

The first option should always be to have a private investor come in and infuse his capital into the private bank.

The next option then, the straightforward option, would be for the government to simply nationalize the stressed bank. It happened during the global financial crisis with innumerable private banks all over the world.

Suggest other solutions.

Conclusion:

Conclude with way forward.

Introduction:

The government recently imposed a moratorium on the financially troubled Yes Bank last week, the Reserve Bank of India announced a draft restructuring plan that entails the State Bank of India acquiring a 49% stake in the private lender.

Body:



YES BANK JOURNEY: FROM **PEAK** TO **PLUNGE**

| | |
|--|---|
| <p>1999 Rana Kapoor, brother-in-law Ashok Kapur & Harkirat Singh partner with Dutch Rabobank to set up Rabo India Finance</p> <p>2002 The trio gets in-principle approval to set up a bank with support from Rabobank</p> <p>2003 Harkirat Singh is sidelined. Rana Kapoor, Ashok Kapur and Rabo promote Yes Bk</p> <p>2005 Yes Bank hits the stock market with a</p> | <p>Rs 300-crore IPO</p> <p>2017 Yes Bank reports divergence of Rs 6,355 crore in bad loans — disclosed and identified by RBI</p> <p>2018 The bank's shares tank nearly 30% in Sept after RBI cuts Rana Kapoor's tenure to 3 months</p> <p>2019 The lender reports fresh divergence in FY19. New CEO Ravneet Gill announces plans for \$2-billion capital-raising</p> <p>2019 Lenders sell Rana Kapoor's entire stake in the bank by invoking pledged shares. Kapoor had pledged the shares to finance family businesses</p> <p>2019 Yes Bank balance sheet hit by a spate of bad loans — IL&FS, Anil Ambani Group, CG Power, Cox & Kings, Altico, CCD, Essel Group, Essar Power, Vardaraj Cement, Radius Developers, Mantri Group</p> <p>2020 The lender's shares tank after bank reveals little-known NRIs as potential investors</p> <p>Feb '20 Yes Bank delays financial results for Q3</p> <p>Mar 5, '20 RBI places Yes Bank under moratorium over severe deterioration in financial condition</p> |
|--|---|



The distressed banks need to be saved as they have the following implications:

**▪ Impact on stakeholders:**

- There are many depositors both big and small who have their deposits in Yes Bank. They would lose hugely if Yes Bank is allowed to collapse, given the fact that the account holders are insured for up to Rs 5 lakh only by the Deposit Insurance and Credit Guarantee Corporation (DICGC).
- Firms and agents dependent on Yes Bank for credit to keep them in business may find their operations disrupted and new credit lines difficult to find.
- Though the scheme ensures that the employees would retain their enumeration and service conditions for a year, the employees may lose their jobs in the future if there are efforts to cut down on the operating costs of the bank.

▪ Impact on the larger economy:

- The Yes Bank crisis can have a profound impact on the larger economy. Similar observations have also been made by SBI chairman claiming that Yes Bank cannot be allowed to fail since that would have consequences for the Indian economy.

▪ Decreased trust in the financial system:

- The investors choose private lenders like Yes Bank, mainly attracted by the higher interest rate offered by them. The collapse of Yes Bank would most likely set off a chain of withdrawals from other private banks as well as some weaker public banks. This could pose a systemic threat to the country's financial system.
- There would also be adverse spin-off effects on investors in bonds and instruments issued by Yes Bank, triggering turmoil in other parts of the financial system.

▪ Spin-off effects:

- Firms and agents dependent on Yes Bank for credit to keep them in business may find their operations disrupted and new credit lines difficult to find. That could lead to their defaulting on debt they owe other creditors. This could increase the overall NPA in the financial systems.
- Ancillary businesses downstream may collapse or turn sick, leading to job losses and loss of livelihoods.
- Assets and machinery may lie idle and the ripple effect may grind other well-performing businesses to a halt as the cycle of debtors and creditors freeze.

▪ Ineffectiveness of regulatory framework:

- In spite of the many laws and regulations imposed by the Companies Act and those stipulated by the Securities and Exchange Board of India and compliance requirements under the oversight of the Reserve Bank of India (RBI), Yes bank failed.
- This calls into question the effectiveness of the present regulatory framework.

Concerns with the resolution plan:**▪ Lack of confidence:**



- A major aspect of the restructuring plan is based on the following principles.
- Yes Bank will not be merged with the SBI, but become a standalone subsidiary of SBI. SBI's equity could be sold off in a future date if that proves feasible.
- Investors other than the SBI must play an important role in the revival of Yes Bank, since the equity of the bank is expected to rise, with the SBI holding only 49% of the total.
- Yes Bank's troubles with non-performing assets are an indication of the troubles in the borrower industries as well, ranging from real estate to power and non-banking financial companies. With the economy facing a persistent slowdown, the prospects of banks' burden of bad loans easing soon are limited.
- Given the gloomy economic climate, investors may not be willing to outlay large sums on equity of Yes Bank. Lack of confidence and the absence of investor support may render the whole exercise ineffective.
- If the RBI's scheme does not work and the investment is not recovered, the SBI's stakeholders which consist of the government and taxpayers will have to bear the burden.
- **Timing of the intervention:**
 - There have been reports of governance failures, accounting irregularities and balance sheet weaknesses at Yes Bank for more than two years.
 - The fact that Yes Bank had not been placed under the Prompt Corrective Framework of the RBI seems to suggest that the current intervention has been much delayed. It is because of the delay that escalated intervention is unavoidable.
- **Effectiveness of the intervention:**
 - There are doubts regarding the effectiveness of such a resolution. There are risks associated with the restructuring plan.
- **Estimates on the necessary capital:**
 - The estimations from SBI places notes that Yes Bank would need about ₹20,000 crores for its reconstruction plan.
 - However, the fact that Yes Bank had ramped up its lending in recent years and had large exposure to bankrupt or heavily indebted corporate groups, casts doubts over the adequacy over the ₹20,000 crore estimate.
- **Provisions regarding AT1 bonds:**
 - The scheme had exclusive provisions regarding the additional tier 1 bonds (AT1 bonds) issued by the bank. The scheme stated that the AT1 bonds totaling close to ₹11,000 crores, would be written down permanently, as part of the restructuring plan.
 - AT1 bonds offer investors a higher return because of the higher risk associated with them, including the possibility of being written down when a bank's equity base is under threat.



- Investors in the AT1 bonds are likely to approach the courts, hampering the restructuring process.

Way forward:

▪ Legislative and administrative changes:

- Given the fact that boards are responsible to the shareholders and also ultimately accountable to the statutory authorities and the fact that the independent directors serve at the discretion and pleasure of the promoter-CEO, one cannot expect the directors to remain truly 'independent' in their duties.
- Necessary changes in the Companies Act and rules issued by RBI and SEBI must address these issues.

▪ Improving regulatory checks:

- The market regulators, the RBI and other statutory authorities must consider reviewing the guidelines and rules and incorporating necessary changes.
- Given the pattern in the failure of promoter-driven entities, the regulators need to focus on addressing related issues.
- There is a need for reforms to strengthen the autonomy of various regulatory institutions.

▪ Punish corporate transgressions:

- Though corporate transgressions happen in the West too, the regulators do not spare the promoter, despite his or her credentials.
- Elon Musk was recently penalized for issues related to insider trading. Bill Gates or Mark Zuckerberg, have often been reined in, investigated and heavily fined.
- India needs to learn from these examples and improve regulatory checks and balances.

▪ Protecting the interests of the employees and customers:

- Regulators through the restructuring plan should not punish the company for the sins of its promoters. All efforts must be made to save the company and jobs.

Elucidate upon the need for urgent reforms of financial markets in the country with special focus on the comprehensive structure that is required to regulate banks, non-bank lenders, and insurance companies. (250 words)

Reference: [Financial Express](#)

Why this question:

The author highlights the need to urgently rethink on the financial regulation aspects in the country.

Key demand of the question:

Discuss in detail the need for urgent reforms of financial markets in the country with special focus on the comprehensive structure that is required to regulate banks, non-bank lenders, and insurance companies.

Directive:



Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Explain what you understand by financial regulation is short.

Body:

Discuss first how India can't rely only on RBI to regulate the credit market; there have to be clean lines of responsibility as to who regulates which sector.

Explain what the issues the current financial regulators are facing and why there is need for a better system to be put in place.

Use the case of Yes Bank collapse and present your arguments effectively.

Conclusion:

Conclude with way forward.

Introduction:

The collapse of Yes Bank has told us that—following on the collapse of bank and non-bank credit, and the logjam on the IBC proceedings—the Indian economy has to face up to an urgent, drastic and far-reaching restructuring of banking and credit institutions in India. India can't rely only on RBI to regulate the credit market. There have to be clean lines of responsibility as to who regulates which sector.

India's policymakers must create one financial watchdog with jurisdiction over debt, equity, pension and insurance instruments. It is no longer viable to maintain walls between markets regulator Sebi, debt and banking regulator Reserve Bank of India (RBI) and insurance watchdog Irda.

Body:

Need for urgent reforms of financial markets in the country:

- The time is past when India could afford crony capitalism, inefficient socialism and corrupt private sector behaviour and judicial delays that have cost up to 2-3 percentage points of GDP growth each year over the past several years.
- Some of the recent events in Indian Economy: The collapse of Yes Bank has told us that—following on the collapse of bank and non-bank credit, and the logjam on the IBC proceedings.
- The collapse of IL&FS, from issuer of quasi-sovereign bonds to a wreck that threatens to take down other institutions, exposed the fragility of shadow banks — called non-banking finance companies (NBFCs) — regulated by RBI.
- Real estate companies such as Amrapali have been rebuked by the courts. In these matters, the victims are not other banks or companies, but individuals.
- Financial transactions costs of doing business in India must be one of the highest in the world. The government did pass the IBC, and it was expected that creditors would be able to recover their dues from borrowers.
- We have noticed that debtors have used every trick in the book to thwart the orders of the specialist court and imposed costs on the creditors. The entire effort to clean up NPA mess has been frustrated by clever debtors.
- Currently, the banking, capital markets and insurance sectors in India are regulated by multiple regulators, i.e. RBI, SEBI and IRDAI.
- The dynamic nature of business necessitates a high degree of inter-regulatory coordination. It also requires regular clarifications and frequent amendments in the existing regulations governing financial activities.



- The development of financial services and products would require focused and dedicated regulatory interventions.
- It is the ordinary tax payer—direct plus indirect tax payer—who bears the burden of the badly regulated credit market. Indian tax payers are not organised for political lobbying. The government often throws money at any problem which exposes a weakness such as farmers' debts.
- The government (of all parties) happily throws money at each problem—farmers distress, inability to repay debt, drought or too much rainfall. It is time tax payers asked some tough questions.
- The Indian economy has become much more like a developed economy than it was even 20 years ago. The current drop in GDP growth rate is due to the uneven supply of credit at exorbitant prices. It is no longer a bullock cart where the government can use physical controls.
- India's economy will generate prosperity only if it lets private sector play a fuller, grown-up and responsible role in the way the economy generates growth.

Way forward:

- Thus, India cannot rely on just RBI to regulate the credit market. There have to be clean lines of responsibility as to who regulates which sector.
- The judicial arm has to be made part of the reform strategy.
- A unified financial regulator in India would provide world class regulatory environment to financial market participants. This also be essential from an ease of doing business perspective.
- The unified authority would also provide the much needed impetus to further development of Indian Economy in India in-sync with the global best practices.
- India needs to set up a Commission to propose a comprehensive structure to regulate banks, non-banking lenders, insurance and stock trading.

Conclusion:

The only way to keep investors safe from corporate opacity and lack of coordination among regulators, is to leave RBI with monetary policy and macro prudential regulation and assigning oversight of all other financial conduct to another agency. A converged financial market needs a converged watchdog.

Why is the Indian currency weakening? Discuss the factors contributing to it while suggesting measures to overcome it. (250 words)

Reference: [The Hindu](#)

Why this question:

The Indian rupee fell sharply against the U.S. dollar to a record closing low of 75.20 as deepening concerns about the economic fallout of the COVID-19 pandemic sent global investors hurrying to dump most assets, especially emerging market holdings, and opt for cash and the relative safety of the greenback. Thus the question.

Key demand of the question:

The answer must explain the reasons for the currency weakening in the country and factors responsible for it.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

**Introduction:**

Briefly explain that as it happened in 2008 during the Global Financial Crisis (GFC), the widespread economic uncertainty triggered by the latest COVID-19 outbreak has forced most investors and businesses across the world to seek to conserve that most crucial asset during times of crisis: cash and more specifically the U.S. dollar.

Body:

List down the contributing factors one by one.

Explain the effect of COVID-19; The depreciation is even more worrisome as the month of March is typically good for the Indian rupee as remittances, from both individuals and companies tend to buoy the exchange rate.

The yellow metal too has been sold by investors looking to hold the most liquid and most fungible of all assets — the U.S. dollar.

Discuss the possible balancing factors available.

Conclusion:

Conclude that the outlook on the rupee will be precarious for the next few days. If there's meaningful coordinated action from global central banks and governments, some calm could return to the markets.

Introduction:

The Indian rupee slumped on Friday to a record closing low of 75.20 against the U.S. dollar as deepening concerns about the economic fallout of the COVID-19 pandemic sent global investors scurrying to dump most assets, especially emerging market holdings, and opt for cash and the relative safety of the greenback. The rupee has now depreciated by more than 5.3% in 2020, with the bulk of its losses, a 4.1% slide, having occurred in March.

Body:**Reasons for weakening of Indian currency:**

- During the Global Financial Crisis (GFC) 2008, the widespread economic uncertainty triggered by the latest COVID-19 outbreak has forced most investors and businesses across the world to seek to conserve that most crucial asset during times of crisis: cash and more specifically the U.S. dollar.
- In 2008, the dollar strengthened about 22% against the Euro as enterprises, especially in the world's largest economy, hoarded the U.S. currency.
- Since the start of the month, overseas investors have dumped Indian equities and debt on a scale not seen since the taper tantrum of 2013, when news that the U.S. was going to gradually wind down its GFC-triggered quantitative easing spurred an exodus out of emerging market assets.
- As on March 20, foreign institutional investors (FIIs) had sold a net ₹95,485 crore, or more than \$12 billion, of shares and bonds.
- This outflow has coincided with the sharp fall in the equity market's key gauge, the 30-stock S&P BSE Sensex, which has slumped 22% so far in March.
- The rupee's decline in March has been part of a broad trend as most currencies across the globe have weakened against their U.S. counterpart.
- The dollar index, which gauges the greenback's strength against a basket of six currencies, has gained almost 4% so far this month.



- The risk aversion as a result of the pandemic triggered by the global outbreak of COVID-19 has been so intense that it has not spared most perceived safe havens including U.S. Treasuries (government bonds) and significantly even gold.
- The yellow metal too has been sold by investors looking to hold the most liquid and most fungible of all assets — the U.S. dollar.

Measures needed to strengthen the rupee:

- The RBI can **start supplying dollars** in the market to cool down the exchange rate.
- **Talk the market down:** In the current situation there is a tendency for importers to rush in to buy dollars and exporters to hold back remitting their earnings on the expectation that the rupee will depreciate further. This exacerbates the demand-supply matrix for foreign currency and drives down the rupee further.
- The RBI can ensure that export earnings come back to the country on time while importers should be urged not to rush in to buy dollars in advance.
- The government should focus on exports and to the extent possible, especially on the tax credit/refund part, clear the coast for exporters. SMEs (small and medium enterprises) which are dominant in the export market have had tax refund issues and this needs to be sorted out.
- As oil is the major import component, and whose prices are rising, a separate window needs to be opened for selling dollars.
- Hedging processes must be put in place to ensure that the purchases are in order.
- OMCs (oil marketing companies) do take forward contracts to buffer against price changes, but to the extent there are open positions hedging should be made mandatory.
- the RBI would have to monitor the other components of demand for dollars — like it did previously, which was five years back — to ensure that there are limits to the drawal of dollars for other purposes such as travel, investment, and education.
- the channels for external commercial borrowing should be looked at judiciously. While urging companies to explore the market makes sense, it should be noted that un-hedged positions can put on pressure on debt servicing.
- the channel for considering a sovereign bond or any such scheme for getting expatriates to invest in such bonds should be planned in advance — which may not be required if conditions stabilise.
- the capital flows need to be monitored proactively and this is where FPIs (foreign portfolio investments) matter. The strong inflow of FPIs has the power to rein in the rupee.
- More zing for masala bonds: Removal of restrictions on Indian banks' market making in masala bond, including the restriction on underwriting such bonds.
- Steps to cut non-essential imports and increase exports. These include steps to curb the import of non-essential goods and encourage the export of domestic goods, which will help in addressing the current account deficit.
- India still has plenty of measures left to curb like issuing NRI bonds and raising interest rates, if things don't improve then the government can resort to other strict measures to curb rupee slide.

Conclusion:

India still has plenty of measures left to curb like issuing NRI bonds and raising interest rates, if things don't improve then the government can resort to other strict measures to curb rupee slide. The government needs to think of a long-term plan to boost exports, through steps that remove



policy barriers that are impeding the growth of export-oriented sectors (like Textiles, petrochemicals, auto-ancillaries etc).

In view of the emergency situation, FRBM Act can be relaxed by the Government of India to enhance the fiscal stimulus. Do you agree? Discuss. (250 words)

Reference: [Financial Express](#)

Why this question:

The question is amidst the pandemic covid19 and its impact on Indian economy.

Key demand of the question:

One must discuss the need of relaxing the FRBM Act and to what extent such an act is justified.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain the context of the question.

Body:

Fiscal Responsibility and Budgetary Management Act (2003) limits the government borrowings for maintaining Macroeconomic stability.

Discuss the Necessity for the relaxation of provisions of FRBM Act.

Due to Covid-19 pandemic the supply chain is largely effected which may lead to job cut of many employees, results in vicious cycle of Poverty.

Discuss the points to be considered for designing a fiscal package.

Conclusion:

Conclude with positive implications of relaxing the FRBM Act.

Introduction:

The Fiscal Responsibility and Budget Management (FRBM) Act was enacted in 2003 which set targets for the government to reduce fiscal deficits. Looming threats of global recession, melting financial markets, and an impending domestic demand destruction pose difficult questions about possible policy responses in India. There is no doubt that till now, the policy focus has been to avert the health emergency caused by COVID-19 because otherwise, the economic emergency would be inevitable.

Body:

Challenges in easing the fiscal deficit target:

- The government has already utilized the elbow room offered by the FRBM Act under exceptional circumstances in the FY20 and FY21 budgets, with the targeted budget deficits being 0.5% of GDP higher than the FRBM mandated ones.
- This leaves limited conventional fiscal space for any stimulus, but there could be a case for temporarily suspending the FRBM Act, as was done during the global financial crisis of 2008.
- In fact, given the recent trends, the FRBM Act-mandated maximum target of a fiscal deficit of 3.8% of GDP might have already been breached for FY20.

Reasons for need of a fiscal stimulus:



- With further fall in the tax collection by the Central Government, the devolution of funds to states by the Centre would also suffer.
- In view of the lockdowns, there could be little doubt that the GST collection, which constituted 70 per cent of the state's tax collection, would plummet this year.
- The "lockdowns" and closure of businesses announced by various states to arrest the spread of Covid would severely restrict the capacity of states to mobilise resources.
- However, considering the grave situation, fiscal stimulus should not be deterred by FRBM considerations as now, growth concerns outweigh worries about future macro stability risks.
- The states have urged Prime Minister to allow states to borrow more by raising the limit set under the Fiscal Responsibility and Budget Management (FRBM) Act.

Measures needed for fiscal stimulus:

- Earmarking an enhanced budget for healthcare would definitely be the top priority.
- Income support to people whose livelihood has been impacted (these will primarily include daily wage earners in different industries, and services like construction, travel, etc). Direct cash transfer to this group is ideal, but might suffer from proper identification challenges.
- Packages for deeply affected sectors like travel and tourism (9.2% of India's GDP) and MSMEs could have three components—temporary postponement of taxes, cheaper loans, and explicit financial grants.
- Frontloading public spending to counterbalance near-term headwinds
- The government can also consider temporary suspension of long-term capital gains tax to incentivize flows back into the equity market in the short term.
- Funding a fiscal package: Even if the government limits the fiscal stimulus to 0.5% of GDP for FY21, there is likely to be a revenue slippage of 0.8% of GDP each from both tax, and non-tax revenue components in the current environment, making the overall fiscal requirement higher by more than 2% of GDP.
- The monetary response: Central bankers are trying to counter the two channels of transmission of the virus shock—financial stability risk arising out of large market dislocations, and growth risk from estimated disruption in economic activity.

Conclusion:

An early assessment and acknowledgement of the extent of demand destruction (both global and domestic) is the need of the hour. Faced with significant uncertainty over the depth and duration of the negative shock, policymaking should be extremely quick and innovative. The fiscal package should, ideally, be proactive (not waiting for signs of growth slowdown in high frequency data), quickly implementable (for a change, revenue expenditure should get priority over capital expenditure), sizeable (at least 0.5% of GDP), targeted (urban might need more support than rural in initial stages), and reversible.

What could be the economic challenges posed by the COVID-19 pandemic to India?

Discuss what should be the focus areas and necessary actions for an economic recovery package for India and discuss the challenges associated with it. (250 words)

Reference: [Economic Times](#), [The Hindu](#)

Why this question:

The question examines the economic impact of the COVID-19 outbreak.

Key demand of the question:

The article explains the economic impact of the COVID-19 pandemic.

Directive:

Telegram: <https://t.me/insightsIAStips>

Youtube: <https://www.youtube.com/channel/UCpocbcX9GEIwaile4HLjwA>

Facebook: <https://www.facebook.com/insightsonindia>



Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain the economic challenges posed by the COVID-19 on the world.

Body:

Pandemics, apart from posing major health risks, also pose economic and social risks. Pandemics have the potential to disrupt economies, and destabilize national security.

The effect of the strong clampdown measures taken by the various governments to arrest the spread of the coronavirus is being felt across the global economy.

The shutting down of industries may lead to loss of jobs and subsequently demand in the economy.

There are fears of a global recession given that the two largest economies of the world, China and the U.S. have been affected by the pandemic. The large and developed economies are expected to not merely slow down, but to contract and experience negative growth.

Present the case of India.

Conclusion:

Conclude with what should be the way forward.

Introduction:

Pandemics, apart from posing major health risks, also pose economic and social risks. Pandemics have the potential to disrupt economies, and destabilize national security. The effect of the strong clampdown measures taken by the various governments to arrest the spread of the coronavirus is being felt across the global economy. India recently set up a task force under the Finance Minister to assess the economic impact of the pandemic and suggest economic recovery measures.

Body:

Economic challenges posed by COVID-19 pandemic to India:

- **Job losses:**

- There are reports that a third of all restaurants could shut down in the formal sector alone and shed more than 20 lakh jobs, in the coming months.
- The automotive sector which was already hit by slowing demand is shutting down its factories due to the pandemic. This puts at risk the incomes of around a million people employed in the automotive sector.
- The unorganized sector, which constitutes a large proportion of the working population in India, would be the most affected, given the loss of livelihood opportunities and lack of social security measures.

- **Drop in demand:**

- Job losses lead to lesser disposable income in the hands of the people and subsequently, consumption drops and overall demand collapses.

- **Financial sector crisis:**



- When businesses close down, they default on their commercial obligations to their financiers and suppliers. This freezes up credit flow in the economy and also affects related sectors.
- **Effect on trade:**
 - Trade constitutes a considerable proportion of the Indian economy. The reduced trade due to stringent clampdown measures would affect the growth in the Indian economy.
 - Given the global nature of the crisis, it is not even possible for India to import and export its way to recovery.

Focus areas and necessary actions for an economic recovery package for India:

- **Safety net for the most affected sections:**
 - About 37% of households depend on casual labour as their major source of income for rural and urban India, and nearly 55% have tenuous regular employment, as per the Periodic Labour Force Survey data for 2017-18.
 - The poor will be the worst affected, including informal workers, workers in the gig economy, or those running small businesses for whom social safety nets are not adequately in place.
- **Direct cash transfer:**
 - As part of the efforts to provide a safety net for the most affected sections, direct cash transfer option should be considered.
 - The destruction of jobs, incomes and consumption can be addressed through a direct cash transfer of 3,000 a month, for six months. This should be provided exclusively to the most vulnerable section of the society.
 - Considering only the bottom half of all Indian households, the direct cash transfer would cost nearly 2.2-lakh crore and reach 60 crore beneficiaries, covering agricultural labourers, farmers, daily wage earners, informal sector workers and others.
 - This would ensure a sustained income stream for the millions who have lost their incomes and provide them a safety net and a sense of confidence.
 - Various existing schemes of the government can be subsumed under the direct cash transfer scheme, to ensure sufficient financial resources to execute the direct cash transfers.
 - The Pradhan Mantri Kisan Samman Nidhi (PM KISAN) programme with a budget of ₹75,000 crore can be subsumed into the direct cash transfer scheme.
- **Right to work:**
 - The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) must be expanded and restructured into a public works programme, to build much-needed hospitals, clinics, rural roads and other infrastructure. This can be achieved by integrating MGNREGA with the Pradhan Mantri Gram Sadak Yojana and the roads and bridges programme.



- The above three programmes together have a budget of nearly ₹1.5 lakh crore. This must be doubled to ₹3 lakh crore and serve as a true 'Right to Work' scheme for every Indian who needs it.
- **Access to food:**
 - The Food Corporation of India has sufficient buffers of rice, wheat and unmilled paddy stocks.
 - The buffer stocks should be used to provide 10kg rice and wheat to every Indian family, free of cost, through the Public Distribution System.
 - The combination, of a basic income of 3,000 rupees a month, a right to work and food grains, will provide a secure safety net for the most vulnerable section of the population.

Challenges associated with economic recovery package:

- There is a need for addressing the liquidity squeeze in the financial system
- Service sectors like airlines, tourism, hospitality, entertainment and logistics have been disrupted due to the clampdown in place.
- India's exports predominantly in textiles and leather which are labour intensive sectors have been disrupted due to the sudden drop in global demand and the restrictions on trade.

Conclusion:

India needs an immediate relief package of 5-lakh crore to 6-lakh crore rupees, targeted across all sections of society and sectors of the economy. Given the inevitable economic crisis, it is prudent to take necessary actions immediately. India needs a comprehensive recovery package that will first cushion the economic shock and then help the economy recover.

Government Budgeting. Investment models.

What do you understand by Budget Transparency? Discuss the advantages associated as well as the ways through which it can be promoted in working of a government. (250 words)

Reference: [Times Of India](https://timesofindia.com)

Why this question:

The question is based on the concept of 'Budget transparency' and the advantages it carries in the effective functioning of the government.

Key demand of the question:

The answer must discuss the concept of 'Budget transparency' and its utility to the government in detail.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly define the what 'Budget transparency' is.

Body:

Budget transparency refers to the extent and ease with which citizens can access information about and provide feedback on government revenues, allocations, and expenditures. Explain the



importance of the concept; Budgets are key documents since they lay out a government's priorities in terms of policies and programs. Opening up budgets and democratizing the budget process gives citizens a say in policy formulation and resource allocation. Highlight the pros and cons associated in implementing the concept. Elaborate on its effect on the functioning of the government. Explain the ways through which budget transparency can be promoted.

Conclusion:

Conclude that budget transparency, while not a goal in itself, is a prerequisite for public participation and accountability. Such information must be disseminated in a timely manner so that citizens can effectively provide feedback that can influence policy formulation and resource reallocation.

Introduction:

Public confidence in the elected representatives/institutions is the foundation of democracy. However, this confidence is undermined by the poor quality of services and non-fulfillment of electoral mandates by the elected representatives. One of the ways in which accountability and transparency in governance can be enhanced by providing ordinary citizens access to information about how public resources are allocated and used by the government. This is the very essence of budget and fiscal transparency.

Body:

Recently, five economic experts from different institutes on Monday flayed the Union budget for "being least transparent" and not acknowledging the economic problem that the country faced.

Advantages associated with Budget transparency:

- Understanding the structure and functioning of finances will enable citizens to hold public functionaries accountable.
- Transparency in budgetary process is essential because it will lead to an improvement in delivery of public services such as education, health etc. at both the union and state levels.
- Budget transparency will enhance public confidence in the government and will act as a deterrent to financial mismanagement and corrupt practices in the country.
- Accountability of the executive will improve if citizens are empowered to access budget information.
- Corruption and financial mismanagement will be tackled efficiently if budgetary decisions are open to analysis and public scrutiny.
- Budget transparency will lead to equitable distribution of public resources.
- Citizens, Civil society organizations, NGOs and different professional groups will get a chance to contribute to budgeting processes as well as policy-making.
- Microeconomic and fiscal stability can be enhanced as the strengths and weaknesses of the budget will be identified in advance.
- Increasing transparency will ensure that investor confidence also increases which in turn will have a good impact on the economy of the country.

Effective and easiest ways to enhance budget and fiscal transparency:

- Clearly defining the roles and responsibilities of different officials/departments involved in the budgetary process.
- Budget literacy/awareness should be enhanced among not only the legislators but also the ordinary citizens.



- Ensuring that useful, comprehensive and reliable budget information is made available to the public.
- Civil society organizations, NGOs and ordinary citizens should be given opportunities to share their perspectives on budget.
- Checks and balance system should be established to assess the budgetary process.

Conclusion:

Budget transparency is of utmost significance so that the public are satisfied that there is guarantee of financial order and the government is working according to its obligations. Incorporating budget and fiscal transparency through efficient governance reforms is absolutely necessary.

Discuss what are electronic transmissions in global trade? Do you think negative list approach on custom duties on them is a better substitute in protecting the competitiveness? Analyse. (250 words)

Reference: [Financial Express](#)

Why this question:

The debate about whether or not to extend the WTO Moratorium on imposing customs duties on electronic transmissions has, to date, narrowly focused on its potential customs revenue implications. Thus the question aims to analyse the approach of the negative list method on custom duties.

Key demand of the question:

The answer must discuss the electronic transmissions in global trade, and the aspects of methods to protect them from competitiveness.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain what electronic transmissions are in global trade.

Body:

Explain the premise first – that import barriers protect domestic industries from foreign competition, and allow them to grow. A similar thought informs India's position against a moratorium on customs duties on electronic transmissions at the World Trade Organization (WTO). Present points for and against the negative list approach on custom duties of these electronic transmissions. Take cues from the article and form an opinion.

Conclusion:

Conclude with what should be the way ahead.

Introduction

Digitizable products are those products that are traded both in physical form as well as 'online' i.e. downloaded from internet. For instance, music, e-book, software etc. The online trade of digitizable products is termed as electronic transmissions. Trade in ET differs from cross-border e-commerce as it excludes those products which are ordered online but delivered physically.

With the advent of Industry 4.0 and the associated technological advancements, the scope of digital trade is expanding much faster than what anyone could have imagined two decades ago. Growing digital trade has been accompanied by a rapidly growing trade in electronic transmissions (ET).

Background of the issue



- In 1998, on the basis of a proposal submitted by the United States, WTO members adopted a Declaration on global electronic commerce, which included a two-year moratorium stating that “Members will continue their current practice of not imposing customs duties on electronic transmissions”.
- Since 1998, this Moratorium has been renewed every two years (except for 2003-2005 when the members failed to reach a decision in Cancun).
- However, because of the difficulties in limiting the scope of ET, the debate on the Moratorium on custom duties has continued without reaching any consensus. Even after twenty years of discussions in the WTO, the understanding of the scope and definition of ET remains limited and the questions that were raised in 1999 remain the same in 2018.
- Among other issues, three important issues which have been continuously debated are:
 - characterization of ET as goods, services, or IP?
 - revenue implications of the Moratorium; and
 - technological feasibility of levying custom duties on ET.

India's stance

- India agreed not to impose customs duties on electronic transmissions in 1998, under WTO's Work Program on e-commerce. This means no duties are applied to products and services transferred electronically. Such multilateralism is designed for flexibility, and the moratorium is reversible.
- If turned into law, moratorium may become irreversible, reducing India's ability to apply an industrial policy lens to the digital economy.
- India had argued that the ecommerce moratorium led to loss of revenue as it gave such transmissions immunity from taxation in the WTO.
- As per an UNCTAD study, India's potential loss of revenue by not taxing electronic transmissions is around \$500 million every year.

Negative List Approach

A negative-list approach, allows flexibility to identify specific products and services not covered by the moratorium.

Advantages for India

- **Services Sector:** India's service industry prospers in an open trade environment, but stagnate in a closed one—90% of the revenue of open IT and IT-enabled industries comes from global markets.
- **Fintech:** India is also a net importer of banking and financial services—industries protected from foreign competition. Their lack of global competitiveness translates to poor domestic performance.
- **OECD** has rebutted the UNCTAD study comprehensively. Infact, it estimates that India will lose 49 times more in terms of GDP, and 51 times more in terms of tax revenues, than what it will gain from tariffs.
- **Increase in digital trade:** India accounts for only around 2% of global trade in value added terms, and digital markets can help increase this.
- **Cheaper Electronic Import:** Digital imports don't necessarily reduce the need for physical imports, rapid digitalization can cause an increase in physical imports of electronic equipment. India's electronics imports will overshadow oil imports within the next decade.



- **Champion Sectors:** The government's Champion Sector initiative, which promotes exports of competitive services like media and entertainment, recognizes this opportunity. Such areas of strength must not be sacrificed at the altar of protectionism.

Disadvantages

- **Revenue Losses:** It is found that the potential per annum tariff revenue loss following a Moratorium will be much more for developing countries as compared to the developed countries, which have very low bound custom duties on the digitizable products.
- **Policy Space:** Broader implications of the Moratorium on developing countries are in terms of losing policy space to develop their digital capabilities as well as their software sectors, which can have important implications for their manufacturing and industrialization processes.
- **No level playing field:** With placing moratorium on duties on ET, developing nations like India will lose level playing field with developed nations to protect their domestic producers as well as protect their infant digital services providers.

Conclusion

Discussions on negative list approach must be done in the upcoming ministerial conference at Nur Sultan, Kazakhstan. This will balance the needs of developing and developed nations. Any further decisions on Moratorium on custom duties on ET therefore need to be taken with caution and clarity about the scope of the Moratorium and categorization of 'digital content'. While GATT gives developing countries the flexibility of imposing custom duties on digital content and maintaining with their negotiated tariffs, GATS can provide them the flexibility of regulating trade in ET according to their domestic laws and regulations. Irrespective of the categorization, it is imperative for developing countries to have policy instruments controlling the trade in ET.

Major crops cropping patterns in various parts of the country, different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers Discuss the probable concerns associated with the new policy that aims to lend legal recognition to shifting cultivation as a form of agroforestry also suggest a way forward. (250 words)

Reference: [Business Standard](#)

Why this question:

The government is reported to be formulating a new policy that would lend legal recognition to shifting cultivation as a form of agroforestry to enable nomadic farmers get bank credit and agriculture-related subsidies.

Key demand of the question:

The answer must present the probable concerns associated with the new policy that aims to lend legal recognition to shifting cultivation as a form of agroforestry while suggesting a way forward.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Define what constitutes shifting cultivation.

**Body:**

Have the following aspects explained –

What is Shifting Agriculture? – It involves clearing of forests, burning the stubble and cultivating the land for a few years before moving to another plot, leaving the old patch for regeneration.

Discuss what was NITI Aayog's idea? – The NITI Aayog which had mooted the idea of redefining jhumming land-use as agro-forestry in a 2018 report.

Discuss the concerns associated.

Explain what should be done.

Conclusion:

Conclude with way forward.

Introduction:

Shifting cultivation or jhumming is a widely practiced system of crop cultivation among the indigenous communities of India. The practice, also known as slash-and-burn agriculture, is when farmers clear land by slashing vegetation and burning forests and woodlands to create clear land for agricultural purposes. This provides very easy and very fast method of the preparation of the land for the agriculture. The bush and the weeds can be removed easily. The burning of waste materials provides needed nutrients for the cultivation. It gives a family its food, fodder, fuel, livelihood and is closely linked to their identity.

The government is reported to be formulating a new policy that would lend legal recognition to shifting cultivation as a form of agroforestry to enable nomadic farmers get bank credit and agriculture-related subsidies.

Body:

The **National Institution for Transforming India (NITI) Aayog**, which had mooted the idea of **redefining jhumming land-use as agroforestry in a report in 2018**, has its own logic for doing so. It is based on the contention that shifting farming is essentially a method of putting land to two distinct uses alternately — agriculture, when it is under cultivation, and fallow forestry, when it is left untilled for revival of forest.

While the objective of this move is good, as it is unfair to deny government sops to those engaged in this age-old farm practice, its consequences are likely to be disastrous.

Challenges posed by shifting cultivation:

- This mode of farming, once fairly common in many parts of the world, has gradually given way to settled agriculture to stave off its ill-effects on ecology, biodiversity, habitats and other natural features.
- It also causes loss or deterioration of forest cover leading to soil erosion and degradation of catchments of rivers and other water bodies.
- There can be the heavy erosion of the soil is getting affected and by this, the revers that are in the plain and low lying areas like the Brahmaputra and Barak get flooded in the time of the heavy rainfall.
- By shifting cultivation, there is a loss of 22 percent of the soil that is on the top of the soil and full of fertility. This creates a serious problem in the economic rate of peoples. In this, there is the rendered permanent land in the shifting cultivation.
- In India, this pernicious practice is still in vogue on an estimated 1.73 million hectares, largely in the ecologically fragile hilly terrains in the Northeast. The other states where this primitive



system of agriculture still persists in some pockets are Odisha, Andhra Pradesh, Kerala and Madhya Pradesh.

Concerns associated with the new policy:

▪ **Increasing pressure on land resources:**

- with growing population pressure on land, the time given for renewal of forests — just three to four years — is usually insufficient for that purpose.
- This phase used to be as long as 10 to 40 years in the past. The green cover now rarely comes up to the level where it can be deemed as secondary forest.

▪ **Poorly maintained land records:**

- There is a lack of updated and authentic data on the area under shifting cultivation as well as the total number of households practicing shifting cultivation.
- While different programmes designed to address the management of shifting cultivation have claimed drastic reductions, the Forest Survey of India's (FSI, 2015) reports over the years continue to attribute large scale deforestation and loss of forest cover in NE India to shifting cultivation.

▪ **Inaccessibility of credit:**

- The farmers engaged in jhumming wanted opportunities for higher income from farming and non-farm employment, education and medical facilities and other civic amenities apart from access to government schemes, which they are unduly denied in the absence of land titles (pattas) in their name.
- They also do not get many of the benefits provided under the Forest Rights Act. At present, they are treated neither as farmers nor as forest dwellers.

▪ **Plight of the farmers:**

- The farmers engaged in jhumming (jhumias) are themselves fed up with this kind of nomadic life. They want to move beyond subsistence farming to take up market-linked agriculture.
- A recent study conducted by the Mizoram University's School of Earth Sciences bears this out. As many as 95 per cent of the respondents felt that jhumming was economically unviable.

Way forward:

- A viable policy to curb shifting agriculture, is that if financial assistance is made available for terracing the hill slopes where jhumming is practised now, the jhumias would gladly shift to permanent farming.
- This, indeed, is not a tall order and should be complied with to put an end to the socio-ecological curse that shifting farming has virtually turned into.
- State agencies like agricultural marketing, forest development corporations of concerned states should take steps to formalize, promote and organize marketing of products from shifting cultivation.



- There is an urgent need to update data on the area under shifting cultivation as well as the total population still involved with the practice.
- There is need to blend traditional knowledge on resource use and management with modern scientific approaches.
- Managing transformations in shifting cultivation areas is fundamental to agricultural development in the uplands of northeast (NE) India and an important element of the Act East Policy.

What India is at present facing is not a “supply”, but a “supply chain” problem in its agriculture sector. Analyse the statement amidst hurdles for free movement and trade in agricultural produce owing to lockdown.(250 words)

Reference: [Indian Express](#)

Why this question:

The Author explains that amid lockdown, hurdles for free movement and trade in agricultural produce must be cleared immediately.

Key demand of the question:

One should explain the issue the agriculture sector facing in the country and what needs to be done to save the sector amidst the ill-effects of the lockdown to it.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Briefly highlight the ongoing problems in the agriculture sector.

Body:

To start with, explain first the effect of the lockdown on the agriculture system of the country.

Explain – What India is at present facing is not a “supply”, but a “supply chain” problem, list down the causative factors first – inter-state movement restrictions and arbitrary actions by local authorities to enforce the lockdown etc.

Take hints from the article and explain what needs to be done.

Conclusion:

Conclude with way forward.

Introduction:

The Food Corporation of India’s current wheat and rice stocks are over 3.5 times the required normative buffer reserve. Government godowns are also overflowing with surplus stocks of pulses. However, the situation today, arising from the nationwide lockdown to combat the novel coronavirus has led to the breakdown of supply chain posing a big problem in agricultural sector. This would result in food quality issues, huge wastage of food, reduced remuneration to farmers and agrarian distress.

Body:

Hurdles for free movement and trade in agri produce due to lockdown:

- The supplies are plentiful but the shutting down of hotels, restaurants and catering businesses has led to demand destruction from institutional buyers.
- With abundant availability and demand now largely restricted to direct household consumption, there could be scope for panic buying and hoarding and people going without food.



- Inter-state movement restrictions and arbitrary actions by local authorities to enforce the lockdown — including closing down produce collection centres and warehouses of organized retailers.
- The links in the chain connecting farmers to consumers have broken down, in turn opening up arbitrage opportunities for unscrupulous speculators
- Agriculture is a 'state subject' and a large part of investment as well as regulatory progress is happening at the state level. The lack of coordination between the states at this time of crisis would be a debacle.
- **Limited reach of mandis:** Also, this procurement system has failed to cover the entire country evenly (back of the envelope calculation suggests that on an average, a farmer needs to travel 12 kms to reach the nearest mandi and more than 50 kms in NE India) while according to the recommendations by National Farmers Commission, availability of markets should be within a 5 km radius.
- **Inadequate infrastructure for storage:** The Planning Commission has recently estimated the gap between agri-warehousing supply and demand at 35 mn MT.
- **Lack of cold storage infrastructure:** India's current cold storage capacity at 25 MT is barely sufficient for 10% of fruit and vegetables produced in the country.

Solutions to ease the supply-chain:

- The only way to prevent this is to ensure seamless flow of produce.
- The trucks should not be held up at state borders due to inter-state movement restrictions.
- The lockdown guidelines have clearly defined food among the essential goods whose transport and supply are not to be subjected to any hindrances.
- The prime minister's message of free flow of goods should be percolated to the ground.
- The state food and civil supplies departments must ultimately ensure that the wholesale markets in these cities receive enough produce to feed their consumers.
- **Integrated cold chain solutions:** They could provide customized solutions for cold storage and refrigerated transportation across India for fresh and frozen commodities.
- **Comprehensive agriculture logistics solutions:** Private players that provide integrated post-harvest management solutions have entered the space to fill these gaps. They could also provide collateral management and other value added services (quality testing, agri insurance, bulk procurement and rural retailing) to its clients.
- **Alternate marketplaces:** By providing a way to bypass the long chain of intermediaries by directly connecting buyers and sellers of agricultural produce and allied services, via a web and mobile based information exchange platform.
- **Reducing the information asymmetry:** Riding on the high mobile penetration in rural India private players are working on the problem of information asymmetry for agricultural producers, by making personalized agricultural market information available to the farmers at minimal costs, through a mobile based service.
- **Innovative ICT tools for supply chain management:** A hosted web service for supply chain management, which can be accessed via basic mobile phones and web browsers, which makes it uniquely suitable for in rural markets. It is a configurable service which offers customers the ability to capture and share data in a simple, low-cost way, empowering them to make better logistics decisions.

Conclusion:



These solutions could lead to better supply chain management in Indian agriculture, reducing inefficiencies and increasing farmer realizations, as well as curbing food waste. A coordinated effort at this time of crisis with good policies bolstered by logistics of the private players can help in achieving the goal. Well-functioning markets are the best guarantee against any collapse of exchange entitlements in the ongoing battle against COVID-19.

Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

Despite attempts by the government to cut imports of coal, there has been year on year growth in shipments of the fuel. Discuss the causes and measures needed to switch to renewables in light of India's INDC goals. (250 words)

Reference : [The Hindu](#)

Why this question:

India's thermal coal imports rose 12.6% to nearly 200 million tonnes in 2019, government data reviewed by Reuters showed, reflecting the second straight year of growth in shipments of the fuel despite attempts by the government to cut imports.

Key demand of the question

The question expects us to explain why there has been an increase in the coal imports in India. Further analyse the impacts of increased coal usage on environment. Conclude the answer with measures needed to switch to the Renewable sources of energy in line with India's INDC goals.

Directive word

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer

Introduction

Give a brief overview of India's coal usage scenario.

Body

Explain how important is coal for increasing energy needs of India.

Discuss the various reasons for increased import of coal resources.

Discuss the various implications of increased coal usage on environment and climate change.

Finally, talk about the measures needed to switch to Renewable sources of energy

Conclusion

Conclude with a way forward.

Introduction

Coal accounts for around 70% of the country's power generation. India's thermal coal imports, rose 12.6% to nearly 200 million tons in 2019, as per government data reviewed by Reuters showed, reflecting the second straight year of growth in shipments of the fuel.

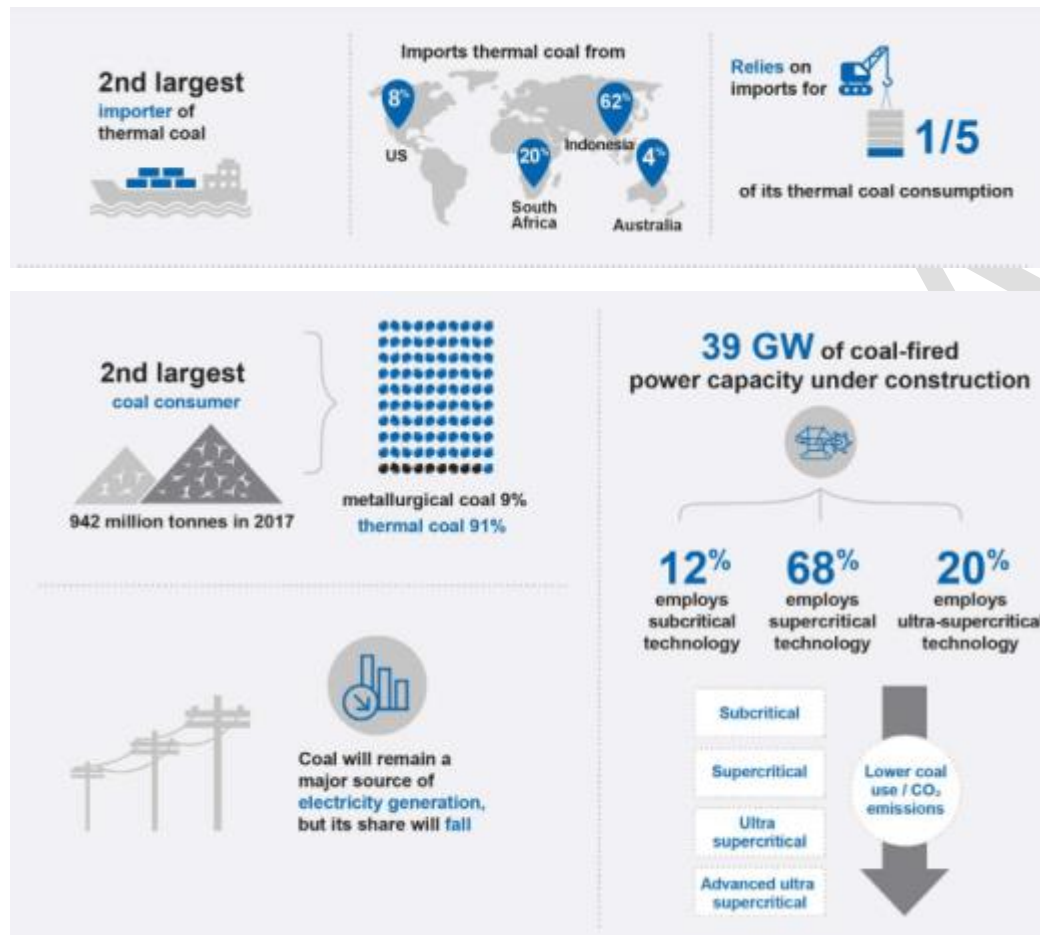
This, combined with the growth of coal-consuming industrial sectors like steel, is why the solid fuel source will continue to be integral to India's economy in the next couple of decades. This is despite the government's ambitious plans to increase the generation of renewable energy to 175GW by 2022.

Body

Coal Usage: Status



- Coal still provides half of India's commercial primary energy and is the dominant fuel for power generation.
- India is the world's second largest importer of thermal coal, and has the potential to be an ongoing source of demand growth.
- Coal India has ambitions to raise domestic coal production to 1 billion tons by 2025–26.



Why switch to renewables?

- **Coal is a Dirty Fuel:** It is a major source of water pollution. Drainage from mining sites, sediment runoff from mining site, erosion from overburden dumps and spoils heaps, leaking from tailing pond heated and heavy metals loaded effluents from coal industries and sewage effluents have environmental impact.
- Blasting and drilling operations, coal fires, vehicular traffic, heavy trucks plying on haul roads, loading and unloading of coal, wind erosion from overburden dumps are air polluting sources.
- Open Case Mining and underground mining changes the vegetation pattern.
- Changes in topography can occur due to clearing of land for opencast mining, erecting infrastructure related to underground mining, dumping of solid wastes in nearby areas, subsidence due to fires.
 - Subsidence may lead to loss of infrastructure and may also lead to a change in the natural drainage pattern of the area.



- Several occupational hazards are associated with coal mining: Pneumoconiosis (by inhaling coal dust), allergies and asthma, noise hazard etc.

Measures to switch to renewables

India has committed to achieve 40 % of India's power capacity to be based on non-fossil fuel sources, by 2030 under the nationally determined contributions. Following measures are being taken:-

▪ Policy Measures

- Government is facilitating developers by allowing Foreign Direct Investment (FDI) of up to 100% through the automatic route.
- Moreover, Inter State Transmission System (ISTS) charges and losses for inter-state sale of solar and wind power shall also be waived for renewable projects commissioned by December 2022.
- The National Wind-Solar Hybrid Policy was issued in May 2018. The main objective of the policy is to provide a framework for promotion of large grid connected wind-solar PV hybrid system for optimal and efficient utilization of wind and solar resources, transmission infrastructure and land.

▪ Solar energy

- Programs such as PM-KUSUM, solar rooftop phase II, 12,000 MW CPSU scheme Phase II, have been introduced in the recent past to increase the share of solar energy usage.
- Solar projects of aggregate capacity **4195 MW have been commissioned** inside various solar parks. Total of **47 solar parks** of aggregate capacity 26,694 MW has been approved in 21 States up to November, 2018.

▪ Wind Energy

- The country currently has the fourth highest wind installed capacity in the world with total installed capacity of 34.98 GW as on October, 2018 against a target of 60 GW by 2022.
- Further, around 9.4 GW capacity is under implementation or have been tendered out.
- The recent assessment conducted by National Institute of Wind Energy (NIWE) indicates a gross wind power potential of 302 GW in the country at 100 meter above ground level.

▪ Small-Hydro power

- A total capacity of 4.5 GW of grid connected small hydro power has been installed in the country as on October 2018 against a target of 5 GW small hydro power by 2022.
- Further, 126 projects of capacity 0.73 GW are under various stages of implementation.

- **Off-grid Renewables :** There is a need for implementing off grid and Decentralized renewables program for meeting energy demand for cooking, lighting, motive power, space heating, hot water generation among others.

Conclusion



India's energy policy currently focuses on bringing affordable electricity to all homes. India's per-capita electricity consumption is only one-third of the world average, and millions of homes still lack an electricity connection. The environment is equally important while climate change mitigation is the primary concern. Despite growing coal consumption, India is on track to meet its Nationally Determined Contribution under the Paris Agreement.

Science and Technology- developments and their applications and effects in everyday life; Achievements of Indians in science & technology; indigenization of technology and developing new technology.

Discuss the need for in- flight Wi-Fi and the benefits and concerns associated.(250 words)

Reference: [Economic Times](#)

Why this question:

The Union Government has permitted airlines operating in India to provide in-flight WiFi services to passengers thus the question.

Key demand of the question:

The answer must discuss the need for in- flight Wi-Fi and the benefits and concerns associated.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain that the Telecom Commission had given its permission to in-flight connectivity of Internet and mobile communications on aircraft in Indian airspace in 2018.

Body:

Explain what you understand by In-flight connectivity of internet Technology. Discuss the technology; its technicalities in short. By this the pilot of an aircraft may permit the access of Internet services by passengers on board an aircraft in flight, through Wi-Fi on board, when laptop, smartphone, tablet, smartwatch, e-reader or a point of sale device is used in flight mode or airplane mode. Broadly, in-flight connectivity systems use two kinds of technologies; discuss them. List down the advantages, challenges and concerns involved.

Conclusion:

Conclude with benefits.

Introduction:

In-flight Wi-Fi connectivity essentially allows those onboard aircraft to access voice, video and data services after the aircraft has attained an altitude of 3,000 meters. The government has permitted airlines operating in India to provide in-flight Wi-Fi services to passengers. Previously, the Telecom Commission had given its green signal to in-flight connectivity of Internet and mobile communications on aircraft in Indian airspace in 2018.

Body:



Working of in- flight connectivity:

- In-flight connectivity systems use two kinds of technologies– **terrestrial and satellite internet services**.
- Once flight mode is activated, the plane's antenna will link to terrestrial Internet services provided by telecom service providers.
- Then, when the aircraft has climbed to 3,000 m, the antenna will switch to satellite-based services.
- This way, there will be no break in Internet services to passengers, and cross-interference between terrestrial and satellite networks will be avoided.

Need for in-flight connectivity:

- The on-board access technology, when combined with AMSS, allows passengers to have telecom connectivity.
- The on-board access technology can be Wi-Fi to access internet, e-mail, internal corporate networks, etc. onboard aircraft.
- The access technology can also be mobile network which will allow voice and text communications.
- Internationally, internet services onboard are provided by all the IFC service providers. However, there is a demand for Mobile Communication on Aircraft (MCA) services also.

Benefits:

- It would enable flyers to avail data and voice services during flights over Indian airspace.
- Airlines will now be equipped to bring dramatic, yet cost effective, enhancements to the passenger experience –with passengers ordering products from their phones and tablets and arranging to have them delivered to their homes, or the hotel on arrival at their destination
- Connectivity to the ground means cabin crews can help passengers to change their onward transit plans to accommodate for changes to their flight, while they are still in the air.
- Globally, more than 30 airlines allow voice calls and internet access during flights. It would enable Indian carriers to compete with their foreign peers.
- Foreign carriers which earlier had to switch off in-service connectivity while flying over Indian Airspace will no longer have to do so.
- Business travelers greatly value these services as they can continue their work commitments without any deterrence.



- Other travelers can be in touch with their near and dear ones even during the flight.

Challenges ahead:

- The high cost of installing equipment may discourage low-cost carriers and even for full-service carriers, the service may come at a premium.
- Airlines will have to bear the initial cost of installing antennae on aircraft. So, the additional cost could find a way into ticket prices.
- Apart from the equipment, airlines will have to bear additional fuel costs, given the extra weight and drag aircraft will face due to the antenna.
- Satellites divide geographical regions into smaller areas to provide broadband connectivity, which is efficient for fixed residents and low speed mobility. Providing internet connectivity to high-speed aircraft requires frequent hand-offs, which increases the level of interference and hampers the quality of service.
- In-flight connectivity provides relatively slow speeds of Internet.
- There are security risks due to possible interference with flight communication systems.
- Expensive service which may increase the flight ticket price
- Technology and laws allow calls to be made from aircraft, but many airlines do not want noisy cabins.

Conclusion:

In-flight Wi-Fi connectivity is subject to factors like the number of concurrent users, satellite coverage and weather conditions. Most airlines discourage voice calls to avoid inconvenience to fellow passengers. Once launched, these factors would be important factors that decide its success. However, IFC is great news, but to woo price-sensitive Indian customers, airlines need to provide affordable tariffs. Since cheaper tariff will be a burden for airlines, they need to find a balanced tariff or provide Wi-Fi as an add-on; they can also consider generating revenue from ads, corporate offerings, e-commerce, premium content, etc.

AI and robotics for public health is a real need and has demonstrated great value in addressing pandemics like Covid-19. Do you agree? Comment. (250 words)

Reference: [Business Standard](#)

Why this question:

The article presents a view that while Robots have been pressed into service for isolated patients the hopes are high that artificial intelligence can help find a counter to Covid- 19.

Key demand of the question:

The answer must discuss the role that AI and robotics can possibly play in addressing public health concerns such as that of Covid-19.

Directive:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

Start with any fascinating fact about robotics and AI applications.

Body:

First, bring out the challenges the public health sector is facing amidst such pandemics. Explain that the coronavirus is putting a lot of new tech, including robots and artificial intelligence, on display. Mention facts such as – New technology like infrared thermometers — potentially unreliable devices [known as “thermometer guns”](#) — are becoming increasingly commonplace in China. Robots are being used to disinfect rooms, communicate with isolated people, take vital information, and



deliver medications. AI is being used to study the outbreak's spread and is powering the search for treatments. Suggest the possible utility of the two to the public health sector, discuss concerns and challenges if any. Suggest solutions.

Conclusion:

Conclude by reasserting the significance of such technologies in such grave situations.

Introduction

The emergence of the novel coronavirus has left the world in turmoil. COVID-19, the disease caused by the virus, has reached virtually every corner of the world, with the number of cases exceeding a million and the number of deaths more than 50,000 worldwide. It is a situation that will affect us all in one way or another.

In response to this growing crisis, many of these agencies and entities are turning to AI (Artificial Intelligence) and related technologies like **robotics combined with AI** for support in unique and innovative ways. **Enhancing surveillance, monitoring and detection capabilities** is high on the priority list.

Body

Application of Artificial Intelligence in Pandemics

- **Disease surveillance:** Human activity -especially migration- has been responsible for the spread of the virus around the world.
 - In the near and distant future, technology like this may be used to predict zoonotic infection risk to humans considering variables such as climate change and human activity.
 - The combined analysis of personal, clinical, travel and social data including family history and lifestyle habits obtained from sources like social media would enable more accurate and precise predictions of individual risk profiles and healthcare results.
- **Predicting Outbreaks:** On December 30, an artificial-intelligence company called **BlueDot**, which uses machine learning to monitor outbreaks of infectious diseases around the world, alerted clients—including various governments, hospitals, and businesses—to an unusual bump in pneumonia cases in Wuhan, China.
 - An automated service called **HealthMap** at Boston Children's Hospital also caught those first signs. As did a model run by **Metabiota**, based in San Francisco. That AI could spot an outbreak on the other side of the world is significant, and early warnings save lives.
 - It would be another nine days before the World Health Organization officially flagged what we've all come to know as Covid-19.
- **Early Diagnosis:** AI has a proven track record here. Machine-learning models for examining medical images can catch early signs of disease that human doctors miss, from eye disease to heart conditions to cancer. But these models typically require a lot of data to learn from.
- **Automatic temperature measurement:** Automated camera systems used in conjunction with thermal sensors and vision algorithms on autonomous or remotely operated robots could be used to monitor temperatures of patients in hospitals.
 - **Example:** In the **United States**, a surveillance company announced that its AI-enhanced thermal cameras can detect fevers, while in **Thailand**, **border officers at airports** are already piloting a **biometric screening system using fever-detecting cameras**.
- **Virtual healthcare assistants:** The number of COVID-19 cases has shown that healthcare systems and response measures can be overwhelmed. Canada-based Stallion.



- AI has leveraged its natural language processing capabilities to build a multi-lingual virtual healthcare agent that can answer questions related to COVID-19, provide reliable information and clear guidelines, recommend protection measures, check and monitor symptoms, and advise individuals whether they need hospital screening or self-isolation at their homes.
- **Intelligent drones and robots:** The public deployment of drones and robots has been accelerated due to the strict social distancing measures required to contain the virus' spread.
 - To ensure compliance, some drones are used to track individuals not using facemasks in public, while others are used to broadcast information to larger audiences and also disinfect public spaces.
- **Curative research:** Part of what has troubled the scientific community is the absence of a definitive cure for the virus.
 - AI can lead the charge for the development of antibodies and vaccines for the novel coronavirus, either entirely designed from scratch or through drug repurposing.
 - For instance, using its **AlphaFold** system, **Google's** AI company, **DeepMind**, is creating structure models of proteins that have been linked with the virus in a bid to aid the science world's comprehension of the virus.
 - Although the results have not been experimentally verified, it represents a step in the right direction.

Application of Robotics in Pandemics

- **Disinfecting surfaces:** Large and small autonomous or remote-controlled robots could be developed to locate and constantly sterilize frequently touched surfaces with ultraviolet light.
- **Contract Tracing:** The roboticists say combining existing security systems with facial recognition software could allow authorities to retrace the steps of patients who tested positive for COVID-19 and contact others who might be at risk, which is known as contact tracing.
- **Nasal swabs:** Testing for coronavirus involves inserting a swab fairly deep into a patient's nasal cavity.
 - There are parts of the process that puts humans at risk of contracting the virus, including collecting the sample, handling the sample, transferring the sample to the test location and the test itself.
 - Automated or **robot-assisted nasopharyngeal and oropharyngeal swabbing** may speed up the process, reduce the risk of infection, and free up staff for other tasks.
- **Medicine Delivery:** Autonomous drones and ground robots can be used to deliver medicine to patients who have the coronavirus.
 - In the field hospital in **Wuhan, China**, **CloudMinds robots** were used to deliver food, drink and medicine to patients.
- **Social Robots:** In the time of isolation and quarantine, social robots can help people provide **social stimulation and interactions**, in addition to providing reminders to follow treatment regimens (to the elderly).

Conclusion

The advantage of technology can be leveraged to tackle pandemics, especially those like covid-19 which has overwhelmed the nations of the world. Cooperation and technology sharing for the benefit of mankind can go a long way in combatting the consequences of the disease outbreak. It will also help in the prediction of future outbreaks and be better prepared for such situations.



Discuss whether Indian agriculture sector is ready for UAV/drone technology application? Highlight the challenges and suggest solutions. (250 words)

Reference: [Indian Express](#)

Why this question:

The article presents the prospects of drone technology to the agricultural systems of the world.

Key demand of the question:

The answer must discuss the significance

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain the technological advancements in the field of agriculture in India and in the developed countries.

Body:

Discuss what UAVs/drones are.

Explain first how India can learn from China, Japan in use of UAVs for improved pest management and crop productivity.

Highlight the challenges that Indian farmers are facing.

Explain in what way the Drones as a technology can address many of these challenges.

Conclusion:

Conclude that It would be in the interest of farmers and even the industry if UAV/drone technology can be deployed for agrochemical applications.

Introduction:

Satellite-driven technology, big data analytics, and digital solutions are helping farmers in many countries today make more informed cropping decisions with regard to weather, soil nutrient application, and pest and disease control. The use of drones can have a major impact on our farms by spraying of agrochemical products, and this needs quick government intervention.

Body:

Benefits of using Drone technology in Indian agriculture:

- Increased efficiency and precision of agrochemical applications, in turn, leading to improved pest management and crop productivity as well as a significant reduction in operator exposure during spray operations.
- The field capacity of drone-assisted spraying is about 20 times higher than that of manual spraying.
- The other benefits are lower water consumption (as the material is sprayed in concentrated formulations) and the development of licensed applicators.
- These include community spraying professionals who may provide application services to farmers similar to combine harvester operators, thereby creating new skilled employment potential in rural India.

Challenges faced by Indian agriculture sector:

- fragmented landholdings.
- lack of adequate market access



- rising costs (especially of human labor)
- poor/below par yields in most crops
- low usage of modern technology relative to their counterparts in the US, Europe, Brazil, Argentina or China.

Measures needed:

- The government, both at the Centre and states, must respond in a timely manner through a sound regulatory framework, so as to prevent uncontrolled and inappropriate use.
- The focus should be to minimize the potential risks that come with the unfamiliarity and rapid adoption of an emerging technology.
- The steps in establishing a robust policy framework is to identify the various risks associated with drone application and the processes to deal with them.
- These cover the specifications for the drones/UAVs and the agrochemical formulations being used, the capabilities of the spray operators and training standards, and environmental variables.
- Based on these, a Standard Operating Procedure (SOP) should be put in place for spray operators, drone manufacturers and agrochemical companies to comply with.
- The necessary regulations should take into consideration (1) civil aviation laws (both local and umbrella) and the setting of vehicle specifications, (2) SOPs and piloting requirements for safe use, and (3) product approvals and permissions for spray operations.
- setting up a system for certification or licensing of drone operators to ensure their capability for piloting the UAV machines safely.
- Such certification/licensing should be subject to regular renewals and conducting of refresher courses.
- The authorities should also accredit training facilities to put in place a standardized programme for all agricultural drone operations.
- India can learn from China, Japan in use of UAVs for improved pest management and crop productivity.

Conclusion:

It would be in the interest of farmers and even the industry if UAV/drone technology can be deployed for agrochemical applications. This should be supported by a robust and pragmatic science-based policy framework, with Japan's revised guidance document serving as the most suitable point of reference for drafting our regulations.

What are vaccines? How are they made? Discuss how do they function.(250 words)

Reference: [The Hindu](#)

Why this question:

The question is straightforward and aims to explain the concept of vaccines, how they are made and their functionality.

Key demand of the question:

Explain the making of vaccines and their functions.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly define what vaccines are. Vaccines are one of the most effective tools to prevent diseases.

**Body:**

Provide for a brief overview on vaccines.

Discuss how vaccines are made; explain the multiple ways that are available.

Explain the stages of development of vaccines.

Explain immune system, effect of vaccines over it.

Discuss the scenario of India.

Conclusion:

Conclude by reasserting significance of vaccines.

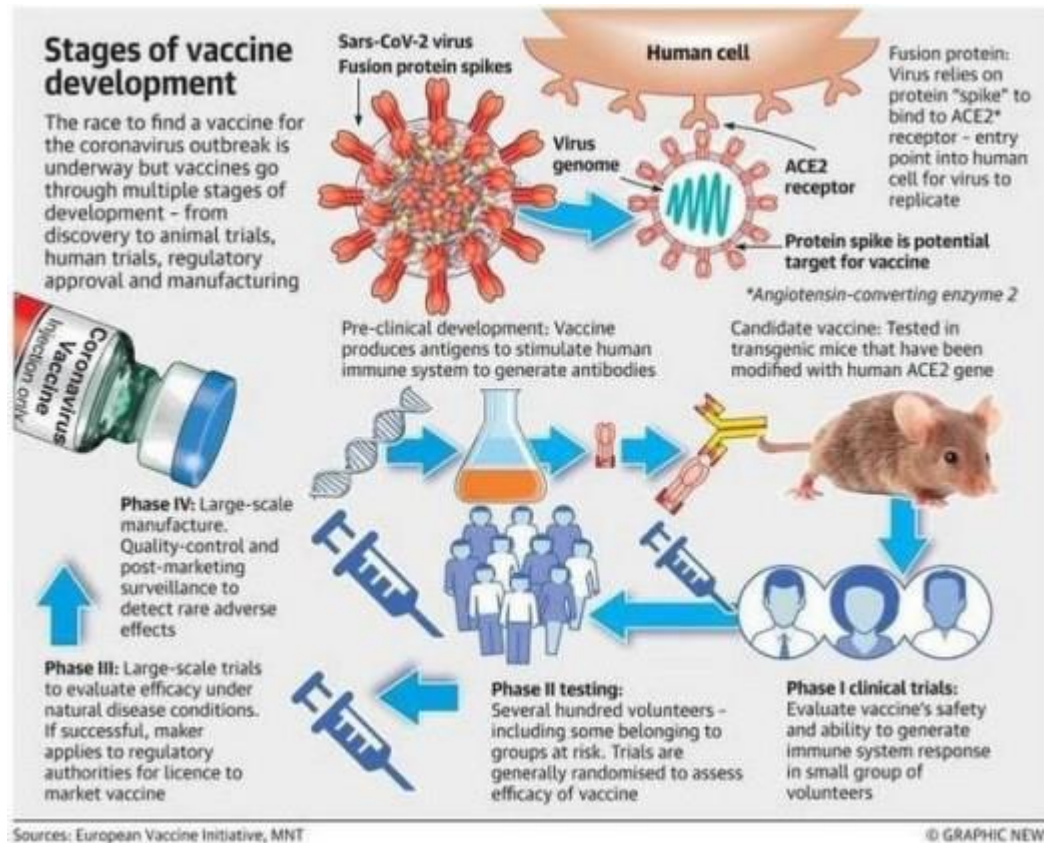
Introduction:

A vaccine is a substance that resembles the disease-causing agent (also called pathogen) but does not cause the disease. It trains the body's immune system to recognize and kill the pathogen, and creates a memory for the future. Vaccines are available to protect us against many life-threatening diseases such as polio, influenza, meningitis, typhoid, tetanus, diphtheria, and certain types of cancers. Vaccines have also been responsible for eradication (or near eradication) of deadly diseases such as smallpox and polio.

Body:

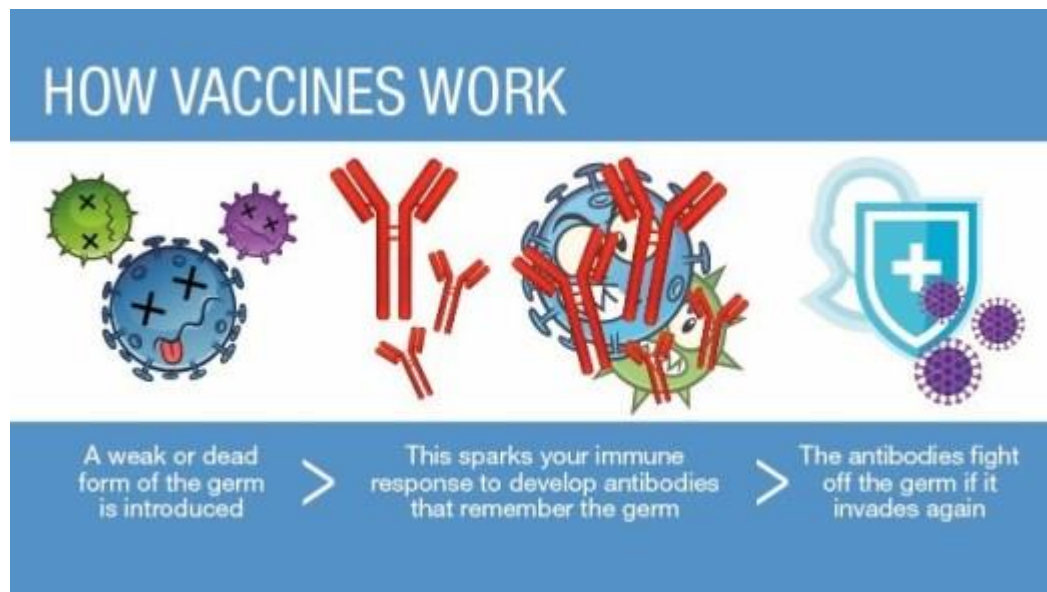
According to WHO, a vaccine helps the body's immune system to recognize and fight pathogens like viruses or bacteria, which then keeps us safe from the diseases they cause. Vaccination is one of the most effective ways to prevent diseases. Vaccines protect against more than 25 debilitating or life-threatening diseases, including measles, polio, tetanus, diphtheria, meningitis, influenza, tetanus, typhoid and cervical cancer. WHO estimates that at least 10 million deaths were prevented between 2010 and 2015 thanks to vaccinations delivered around the world.

Making of Vaccines:



- Vaccines are made using the disease-causing virus or bacteria, but in a form that will not harm your child. Instead, the weakened, killed, or partial virus or bacteria prompts your baby's immune system to develop antibodies, or defenders, against the disease.
- Once it is determined how the virus and bacteria will be modified, vaccines are created through a general three-step process:
- Antigen is generated. Viruses are grown in primary cells (i.e. chicken eggs for the influenza vaccine), or on continuous cell lines (i.e. human cultured cells for hepatitis b vaccine); bacteria is grown in bioreactors (i.e. Hib vaccine).
- Antigen is isolated from the cells used to create it.
- Vaccine is made by adding adjuvant, stabilizers and preservatives. Adjuvants increase immune response of the antigen; stabilizers increase the vaccine's storage life; and preservatives allow for the use of multi-dose vials.

Functioning of Vaccines:



- A vaccine works by training the immune system to recognize and combat pathogens, either viruses or bacteria.
- To do this, certain molecules from the pathogen must be introduced into the body to trigger an immune response.
- These molecules are called antigens, and they are present on all viruses and bacteria.
- By injecting these antigens into the body, the immune system can safely learn to recognize them as hostile invaders, produce antibodies, and remember them for the future.
- If the bacteria or virus reappears, the immune system will recognize the antigens immediately and attack aggressively well before the pathogen can spread and cause sickness.

Conclusion:

According to the World Health Organization, over 40 different candidate vaccines for COVID-19 are in development. These include an inactivated vaccine being developed in China (Sinovac) using purified COVID-19 virus killed with formaldehyde (a chemical). A live attenuated vaccine being developed by Codagenix, a U.S.-based company in partnership with the Serum Institute of India (Pune), uses a genetically engineered COVID-19 virus that replicates very poorly. There are multiple other vaccine candidates under development that use DNA, RNA, viral vector and subunit protein platforms.

Discuss the promises that the National Mission on Quantum Technologies and Applications hold for India in the race of quantum revolution. Also comment on the associated constraints. (250 words)

Reference: [The Hindu](#)

Why this question:

The government, in its [Budget 2020](#), had announced a National Mission on Quantum Technologies & Applications (NM-QTA) with a total budget outlay of Rs 8000 Crore for a period of five years to be implemented by the Department of Science & Technology (DST). Thus the context of the question.

Key demand of the question:

One must explain the prospects of National Mission on Quantum Technologies and Applications for India in the quantum revolution race while bringing out the challenges it may face in it.

Directive:



Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain what quantum technologies are, what their applications are.

Body:

Talk about the National Mission on Quantum Technologies and Applications (NM-QTA).

The Mission will be able to address the ever increasing technological requirements of the society, and take into account the international technology trends and road maps of leading countries for the development of next generation technologies.

The areas of focus for the NM-QTA Mission will be in fundamental science, translation, technology development and towards addressing issues concerning national priorities. The mission can help prepare next generation skilled manpower, boost translational research and also encourage entrepreneurship and start-up ecosystem development.

Explain the challenges associated.

Discuss applications and significance.

Conclusion:

Conclude with way forward.

Introduction:

Quantum Technology is based on the principles of quantum theory, which explains the nature of energy and matter on the atomic and subatomic level. It concerns the control and manipulation of quantum systems, with the goal of achieving information processing beyond the limits of the classical world. Quantum principles will be used for engineering solutions to extremely complex problems in computing, communications, sensing, chemistry, cryptography, imaging and mechanics.

The government, in its Budget 2020, had announced a National Mission on Quantum Technologies & Applications (NM-QTA) with a total budget outlay of Rs 8000 Crore for a period of five years to be implemented by the Department of Science & Technology (DST).

Body:

Key features of the scheme:

- The areas of focus for the mission will be in fundamental science, translation, technology development, human and infrastructural resource generation, and start-ups to address national issues.
- The applications under the mission include aerospace engineering, numerical weather prediction, simulations, securing communications and financial transactions, cybersecurity, advanced manufacturing, health, agriculture, and education.
- The mission plans to draw upon the existing strengths within academic institutes across India to support interdisciplinary research projects in key verticals involving quantum technology. It will try to develop key foundational strengths in important core areas.
- It has become imperative both for the government and industries to be prepared to develop these emerging and disruptive technologies to secure communications and financial transactions, remain competitive, drive societal progress, generate employment, foster economic growth, and to improve the overall quality of life, the release stated.



Conventional computers process information in 'bits' or 1s and 0s, following classical physics under which our computers can process a '1' or a '0' at a time. Quantum computers compute in 'qubits' (or quantum bits). They exploit the properties of quantum mechanics, the science that governs how matter behaves on the atomic scale. In this scheme of things, processors can be a 1 and a 0 simultaneously, a state called quantum superposition. Because of quantum superposition, a quantum computer — if it works to plan — can mimic several classical computers working in parallel.

Applications:

▪ **Secure Communication:**

- China recently demonstrated secure quantum communication links between terrestrial stations and satellites.
- This area is significant to satellites, military and cyber security among others as it promises unimaginably fast computing and safe, unhackable satellite communication to its users.

▪ **Research:**

- It can help in solving some of the fundamental questions in physics related to gravity, black hole etc.
- Similarly, the quantum initiative could give a big boost to the Genome India project, a collaborative effort of 20 institutions to enable new efficiencies in life sciences, agriculture and medicine.

▪ **Disaster Management:**

- Tsunamis, drought, earthquakes and floods may become more predictable with quantum applications.
- The collection of data regarding climate change can be streamlined in a better way through quantum technology. This in turn will have a profound impact on agriculture, food technology chains and the limiting of farmland wastage.

▪ **Pharmaceutical industry:**

- India's interest in the pharmaceutical and healthcare industry is huge.
- Quantum computing could reduce the time frame of the discovery of new molecules and related processes to a few days from the present 10-year slog that scientists put in.
- For instance, tracking protein behaviour or even modelling new proteins with the help of quantum computers could be made easier and faster.
- Tackling chronic diseases like cancer, Alzheimer's and heart ailments is a big possibility of the technology.

▪ **Augmenting Industrial revolution 4.0:**

- Quantum computing is an integral part of Industrial revolution 4.0.
- Success in it will help in Strategic initiatives aimed at leveraging other Industrial revolution 4.0 technologies like the Internet-of-Things, machine learning, robotics, and



artificial intelligence across sectors will further help in laying the foundation of the Knowledge economy.

Concerns:

- The challenge lies in harnessing the properties of quantum superposition in a highly controlled manner. The qubits tend to be very fragile and lose their “quantumness” if not controlled properly. Also, a careful choice of materials, design and engineering is required to get them to work.
- On the theoretical front lies the challenge of creating the algorithms and applications for quantum computers.
- These projects will also place new demands on classical control hardware as well as software platforms.
- Further, Information technology-based security infrastructure would never be the same once quantum systems become a reality, given the ultra-fast speed of computing power.
- Warfare and conflict strategists will have new challenges to face.
- In such scenarios India’s current plans may have to be reworked to develop integrated war-theatre strategies factoring in quantum technologies.

Way forward:

- An unprecedented collaboration between physicists (both experimentalists and theorists), computer scientists, material scientists and engineers.
- Government needs to partner institutions and the scientific community to work out details of the mission and roll it out quickly.
- Private funding, both via industry and philanthropy, can play an outsized role even with much smaller amounts.

Conclusion:

With a solid research base and workforce founded on significant and reliable government support, it can lead to the creation of innovative applications by industries, thereby stimulating economic growth and job creation, which will feed back into a growing quantum-based economy. The government’s financial and organizational support will also ensure that both public and private sectors will benefit. It will establish standards to be applied to all research and help stimulate a pipeline to support research and applications well into the future.

What is Laser Surface Micro texturing? Discuss the significance of it.(250 words)

Reference: pib.go.in

Why this question:

International Advanced Centre for Powder Metallurgy & New Materials (ARCI), an autonomous R&D Centre of Department of Science and Technology (DST), has recently developed ultrafast laser surface texturing technology, which can improve the fuel efficiency of internal combustion engines. Thus the context of the question.

Key demand of the question:

Deliberate what laser surface micro texturing technology is and explain how does it help to improve fuel efficiency of internal combustion engines.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Telegram: <https://t.me/insightsIAStips>

Youtube: <https://www.youtube.com/channel/UCpoccbCX9GEIwaile4HLjwA>

Facebook: <https://www.facebook.com/insightsonindia>



Introduction:

Briefly define Laser Surface Micro texturing.

Body:

In this technology, a pulsating laser beam creates micro-dimples or grooves on the surface of materials in a very controlled manner.

The texture surfaces were created on automotive internal combustion engine components, piston rings and cylinder liners using 100 fs pulse duration laser.

The created textures were tested in an engine test ring under different speeds and temperatures of coolant and lubrication oil.

Explain the significance of the technology –

It offers precise control of the size, shape and density of micro-surface texture features and has gained momentum as a way to control friction and wear.

Textures can trap wear debris when operating under dry sliding conditions and sometimes provide effects like enhancing oil supply (lubricant reservoir) which can lower friction coefficients and may enable reduced wear rate.

By using this there was a 16% reduction in the lube oil consumption with the use of texture on the piston rings.

Fabrication of a pattern of micro dimples or grooves on the surface of materials results in a change in surface topography which generates additional hydrodynamic pressure, thereby increasing the load-carrying capacity of the surfaces.

Hence these become useful for trapping wear debris when operating under dry sliding conditions and sometimes provide effects like enhancing oil supply (lubricant reservoir) which can lower friction coefficients and may enable reduced wear rate etc.

Conclusion:

Conclude with way forward.

Introduction:

Laser surface micro-texturing offers precise control of the size, shape and density of micro-surface texture features. In this technology, a pulsating laser beam creates micro-dimples or grooves on the surface of materials in a very controlled manner. The International Advanced Centre for Powder Metallurgy & New Materials (ARCI) has developed ultrafast laser surface texturing technology, which can improve the fuel efficiency of internal combustion engines.

Body:

Laser surface micro-texturing:

- In this technology, a pulsating laser beam creates micro-dimples or grooves on the surface of materials in a very controlled manner.
- Such textures can trap wear debris when operating under dry sliding conditions and sometimes provide effects like enhancing oil supply (lubricant reservoir) which can lower friction coefficients and may enable reduced wear rate.
- The texture surfaces were created on automotive internal combustion engine components, piston rings and cylinder liners using 100 fs pulse duration laser.
- The micro dimples of 10-20 μm diameter and about 5-10 μm deep which have been created with laser beams had a regular pattern.

Properties / advantages of micro-texturing using ultrashort pulse lasers are:

- Machining of extremely small features of down to 10 μm or smaller
- Very high depth resolution (sub-micrometer)
- Works on nearly every material, including very hard materials



- Negligible heat effects: no melt, burrs, or other damage
- Contact and force-free process

Significance:

- The created textures were tested in an engine test rig under different speeds and temperatures of coolant and lubrication oil, and it was observed that there was a 16% reduction in the lube oil consumption with the use of texture on the piston rings.
- The 10-hour lube oil consumption test shows that the blow-by substantially reduced with textured rings.
- Fabrication of a pattern of micro dimples or grooves on the surface of materials results in a change in surface topography which generates additional hydrodynamic pressure, thereby increasing the load-carrying capacity of the surfaces.
- These textures can become useful for trapping wear debris when operating under dry sliding conditions and sometimes provide effects like enhancing oil supply (lubricant reservoir) which can lower friction coefficients and may enable reduced wear rate.

Application areas: There are various applications for the types of textures that can be produced using laser micro-texturing:

- **Decorative textures** – Improving the look of parts by adding high definition / low relief textures or LIPSS / color effects to parts
- **Tribology** – Changing frictional properties, e.g., reducing friction on moving parts (seals, bearings) or creating soft-touch consumer or medical parts
- **Wetting** – Making surfaces super-hydrophobic (water repellent) or super-hydrophilic
- **Optical properties** – Altering the surface to reduce glare, change the absorption of light, or even act as a diffraction grating (using LIPSS).

“The science deficit in our society has raised its ugly head and highlighted the paradox embedded in us”. Do you agree with the statement? Elucidate.(250 words)

Reference: [Hindustan Times](#)

Why this question:

The article talks about the significance of scientific temper in the society and its relevance.

Key demand of the question:

Explain the ill effects of science deficit in our society. Discuss what it has led us to and what needs to be done to overcome it.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Briefly define scientific temper and its importance.

Body:

Explain why there is deficit of scientific temper in our societies.

One can quote the response people are giving amidst the covid-19 scare such as reports of stigmatisation, ostracisation and eviction of not just those suspected of infection, but of airline staff who ferried them, and worse, of medical workers etc. that justify the deficit of scientific thinking and decision making.

Discuss the ill-effects it is making on the society.

Suggest solutions to address the issue.



Conclusion:

Conclude with need to develop scientific temper among all the people of the society.

Introduction:

Scientific temper is a way of thinking and acting which uses a method, including observing physical reality, questioning, testing, hypothesizing, analysing and communicating. It involves the application of logic and the avoidance of bias and preconceived notions in arriving at decisions, and becomes particularly valuable while deciding what is best for the community or the nation. **Article 51A of the Constitution** lists the fundamental duties of citizens, which include development of scientific temper, humanism and spirit of inquiry and reform. It means the Indians must have an open mind to learn new things.

Body:

Recent instances of science deficit in our society:

- The recent events after Janata curfew called in by PM had claims that the cumulative reverberations like it “boosted blood circulation in the body” and “rendered the virus ineffective”.
- Some super-obedient ones, including the Pilibhit district magistrate, led clanging and conch-blowing processions while being dangerously undistanced.
- A story snowballed on social media that the virus had indeed “receded” as per satellite data gathered by NASA, prompting this government to ask social media companies to control the spread of misinformation.
- The minister of state for social justice and empowerment thought it appropriate to lead a tight cluster of people to chant “Go Corona Go”.
- This inspired replication by even larger gatherings in the unlikeliest of places such as “IT-city” Bengaluru’s airport.
- People drank cow urine as a preventive against the virus (even as they held their noses), egged on and applauded by people holding public office.

Science-deficit and paradoxes:

- On the one hand, Indians have embraced modern technologies in daily living, with mobile phones and foetal diagnosis equipment penetrating deep into the rural hinterland. Chandrayaan-2 caught the public imagination. On the other hand, among the same people, there appears to be little recognition of the science that underlies these technologies.
- Solar and lunar eclipses witness countrywide shut-downs, with pregnant women caged in, food thrown away, and science graduates, engineers and even PhDs watching eclipses on TV instead of experiencing, learning from, and teaching about the beauty of the real spectacle.
- Claiming cow urine to be a treatment for Covid-19 is part and parcel of a deep-rooted deficit of scientific temper even in our educated populace.

Dangers posed by the science-deficit:

- Reports of stigmatization, ostracisation and eviction of not just those suspected of infection, but of airline staff who ferried them, and worse, of medical workers, are trickling in daily.
- Coming right after the public applause for medical doctors, this is a sad reflection on our values. But it also shows a basic lack of understanding of how flu-like infections work.

**Reasons behind the science-deficit:**

- Our early science education is hugely culpable.
- It values information load over understanding, has sidelined learning-by-doing, and built a culture of unquestioning obedience.
- There is also a lack of clarity as to why we are teaching science and not just how. Science is thought of as a subject and not as a way of life.
- Science research in laboratories is driven a bit by curiosity, but mostly for personal livelihood and glory. There is no demand to subscribe to the scientific method as a way of life.
- Scientists are typically quite disengaged from early science education, and appear to be content to skim the cream that willy-nilly floats to the top, with no regard to the scientifically illiterate sea below.
- Finally, surprisingly few scientists engage with lay audiences, mass media or the government.
- And the State, while not demanding that public engagement be an imperative in our taxpayer-funded science institutions, is not even, for example, enforcing the Cable Television Networks law which prohibits content that encourages superstition or blind belief.

Measures needed to inculcate scientific temper:

- In such a situation of social and cultural malaise, a major role of Scientific Temper is to revive confidence and hope and to dispel fatalistic outlook.
- The campaign to promote Scientific Temper must inculcate values like equality and dignity of all human beings, distributive justice, dignity of labour, and social accountability of one's actions.
- Although big science (space probes, cosmic ray physics, etc.,) has served India well, the nation must also look at areas that are less eyeball-grabbing, such as water resources, agriculture and the environment, he said, requesting anonymity because he is not allowed to talk to the press.
- science and scientists must have a position of pride in society which can influence many young students to move into scientific fields.
- A nationwide science policy which should be able to anticipate problem areas, devise course correction.
- Better funding of Science and Technology initiatives which would help in development of the society.
- All these are essential for bringing about social, economic and cultural transformation of our country.

Conclusion:

Scientific temper needs to be promoted across all sections of the society systematically, using tools like National Knowledge Network. Public and political understanding of science should be based on evidence and debate with open mind.



Awareness in the fields of IT, Space, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.

As commercialization and privatization transform humankind's activity in outer space, India needs imperative and drastic reforms in its space sector. Discuss. (250 words)

Reference: [Indian Express](#)

Why this question:

At author talks about the changing dynamics of outer space and the transformation of commercialization and privatization that it has witnessed in the recent years and how at the same time India needs to ace-up.

Key demand of the question:

The answer must present an analysis of the changing dynamics of the space as an avenue of commercialization and where India stands today and what needs to be done in the coming future.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain the aspects of Space and the space race the world countries are contesting.

Body:

Highlight first the growing role of the private sector and the effort by nations in Space research, development and exploration. Discuss the aspects of privatization and commercialization of space. Take hints from the article and discuss where does India stand? What are the challenges before it and how should it overcome them. Suggest the leap forward that India is yet to take and must focus on the reforms and radical changes in its approach to Space.

Conclusion:

Conclude by reasserting the significance of Space as an avenue for commercialization and future for many.

Introduction:

Space programmes have for long been viewed as either strategic or symbols of national prestige for big countries that are prepared to invest significant resources in the pursuit of a credible presence in outer space. India, however, is quite some distance away from adapting to the unfolding changes in the global space business. In its early years, India's space programme that was constrained by lack of resources found innovative ways of getting ahead in space.

Body:

Commercialization and privatization is transforming humankind's activity in outer space:

- Japan is scheduled to launch the UAE Mars probe this year.
- India's own ISRO is also working with the UAE on its Mars mission.
- The first Emirati Astronaut, Hazza al-Mansouri spent more than a week in the US-Russian space station.
- Luxembourg has a similar strategy. It too entered the space sector only in the middle of the last decade. It is also driven by the need for economic diversification.
- Military uses of space and prestige projects like Moon-landing have emerged, major private sector entities already in the aviation industry like Boeing and Lockheed won space contracts in the US.



- As the digital revolution in the 21st century transformed the world economy, the commercial space sector has begun to grow in leaps and bounds. The global space business is now estimated to be around \$ 400 billion and is expected easily rise to at least trillion dollars by 2040.
- The entry of private sector has begun to drive down the cost-per-launch through innovations such as reusable rockets.
- SpaceX plans to launch hundreds of satellites into the low-earth orbit to provide internet services. Amazon has plans to build a network of more than 3,000 satellites in the low-earth orbit.
- SpaceX and Amazon have plans to develop space tourism and build human settlements on the Moon and on Mars.
- It is not just big companies that are aiming for the Moon. Last year, a private company in Israel sent a lunar lander to the Moon.
- Although the lander crashed, much like India's Vikram, the private sector has begun to do things that were once the monopoly of national agencies.

Potential advantages of rising Space industry for India:

- Adding an edge to India's foreign policy as our space capabilities can be a part of our initiatives to foster new relationships,
- Avoiding the outflow of tax-payer's money to foreign hands from where we procure turnkey products and services,
- Creating more opportunities for foreign direct investments (FDI), as well as new jobs for highly-skilled labour market,
- Empowering India's defence system by equipping it with space technology, and allowing armed forces to procure defence products and services indigenously, and
- Reversing the brain-drain from India.

Challenges for private space entities in India:

- **Monopoly:** In India 'Space' means Indian Space Research Organization. Globally the technology is highly protected because of its dual use capability. Even if it was not, it would be prohibitively expensive. Although ISRO encourages private sector participation in the national space programme, its model is still very 20th century — in terms of governmental domination.
- **Funding:** A major challenge in setting up a space business in India is funding. Space industry is capital intensive and upstream activities come with a long gestation period.
- **Investor's Dilemma:** The lack of clarity among the investors and lack of the ecosystem required for significant contribution is a challenge for the investors.
- **Lack of Regulation:** India is a party to the **Outer Space Treaty**, where one of the fundamental requirements laid upon states is the supervision of space activities within its borders, the country did not have any formally legislated laws. This is a potential roadblock for commercialization.
- **Growth Challenges:** Scaling up, international marketing and funding are challenges.
- **Lack of Support:** The Indian ecosystem has neither incubation support nor pointers to seek support of leaders such as ISRO for space start-ups.
- **Political and bureaucratic hurdles** limit private space operations in India.
- Low in-house capacity of ISRO restricts them to very few launches in a year. Privatization can offload 30-40% of the work and help them work more efficiently.

Way forward:



- India should have **national space activities legislation** which takes on board all stakeholders.
- A **public-private partnership (PPP) model** can be looked into to realise ISRO's workhorse Polar Satellite Launch Vehicle (PSLV), with a joint venture between ISRO and the private sector.
- In the UK, space ventures are treated as a complement to big organizations and not a competitor. This should be encouraged in India too.
- A **supportive international partner and likeminded local partners** helps to set up a space business.
- The idea should be to let the private industry build their own facilities after gaining enough expertise.
- ISRO has built a space technology park spread over 25 acres in Bengaluru where the entire range of facilities have been set up for use by the industry.
- It needs a regulatory environment that encourages a more dynamic role for the private sector and promotes innovation. It will be a pity if India squanders the many advantages of its early start in space by delaying the much-needed reform and reorganization of its space sector.

Conclusion:

The private sector already supplies majority of the sub-systems in satellite manufacturing. This can be further scaled up into other activities with proper regulation and partnership of the ISRO and private sector. The country must deregulate the space sector to encourage private enterprise if we are to compete in the new space economy.

What are the threats and challenges modeled by the use of crypto currencies as a substitute to the customary currencies? Explain. (250 words)

Reference: [Live Mint](#)

Why this question:

In April 2018, the Reserve Bank of India (RBI) had barred regulated entities such as banks from dealing in bitcoins and other virtual currencies. The Supreme Court has now lifted the restriction.

Key demand of the question:

The answer must discuss about crypto currencies: merits and demerits with special focus on the challenges that they pose as a substitute to the regular currency.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Briefly explain what crypto currencies are.

Body:

Cryptocurrencies are internet-based mediums of exchange. They are digital currencies that can be exchanged between parties without the need of a third entity, like a bank.

Discuss the risks associated with Cryptocurrencies, explain that Cryptocurrencies are vulnerable to cyber hacking and data privacy breaches and increase the risk of money laundering. They do not have any fundamental value as they are not legal tender, and are not backed by governments, central banks or a pool of assets.

They are a poor medium of exchange also because their valuation tends to be excessively volatile and susceptible to manipulation. They are seen as instruments of speculation and transactions that are below the radar of regulators and law enforcement agencies etc.

Discuss the worries of RBI associated with Cryptocurrencies.

Conclusion:



Conclude with the possible future of such technology.

Introduction:

A cryptocurrency is a digital or virtual currency that uses cryptography for security. Cryptocurrencies use decentralized technology to let users make secure payments and store money without the need to use their name or go through a bank. They run on a distributed public ledger called blockchain, which is a record of all transactions updated and held by currency holders. The most common cryptocurrencies are Bitcoin, Ethereum, Ripple, and Litecoin.

Body:

Cryptocurrency is a disrupter to traditional notions of currency:

- The government is wary that regulation will provide legitimacy to “what is currently ambiguous,” and may lead to further rise in its valuation and end up contributing “to the investment bubble”.
- A currency that is not based on any real economic activity, unlike a sovereign currency whose value is based on the relative value of a tradeable basket of goods and services, cannot prima facie inspire much comfort.
- Bitcoin’s value, astronomical even now at about \$8,300 but much below January 2018’s stratospheric levels, is based on demand for a fixed supply of Bitcoins in the future it cannot exceed 21 million in number, of which 18 million has already been mined.
- The security offered by encryption of cryptocurrency may be breached by hackers who are always lurking for any point of weakness. This may end up costing investors huge amounts of money because prices are attached to the currencies.
- Cryptocurrency exists only in essence such that there are no physical coins and notes. As a result, there is, therefore, no central place where the currency can be deposited for safe keeping.
- Lack of regulation of cryptocurrency means it is not under any control or supervision. This attracts more investors thereby increasing their chances of investing in this technology.
- Cryptos are feared not just for their sheer speculative propensities, but also for their capacity to undermine sovereign currencies (the latter is an exaggerated apprehension).
- Virtual currency is being traded anonymously over the Internet and used for a host of anti-national and illegal activities, from terror funding to illicit trade of arms and drugs and so on.
- The online use of this currency, was without any border restrictions or geographical constraints, resulting in danger to the integrity and sovereignty of the nation.
- However, it does not make sense to go overboard and criminalise merely adventurous crypto speculators. There are no official or other data available that point towards misuse of cryptocurrencies for illegal ends

However, there are a **few advantages of cryptocurrencies:**

- One of the reasons why cryptocurrencies have gained global appeal is because of their secure nature. Cryptocurrencies are encoded into a database.
- Cryptocurrency trading draws its legitimacy from the unanimity of the participants in its network. It has gained global approval by most leaders as a legal medium of payment.
- No transaction fees are usually charged for transactions involving cryptocurrency.
- Cryptocurrency does away with the need for a regulator.
- By making everything public, cryptocurrency negates the need for a middleman.



- According to bitcoin.org, no individual or organisation can manipulate Bitcoins because it is cryptographically secure and do not contain customers' personal information.

Measures needed:

- Governments the world over have banned cryptocurrencies as a medium of exchange, and India is no exception.
- Yet in India, an estimated 30 lakh Bitcoins are reportedly in circulation. From a value of a little over ₹60,000 at the start of 2017, the Bitcoin now commands a value of nearly ₹6 lakh, with a global market cap of \$10.2 trillion. Cryptos are recognised in the US as an asset class.
- Firms like Paypal, Uber, Visa and Mastercard have all signed up as part of the consortium to control it. Each has invested \$10 million.
- Criminalising possession of cryptocurrencies will impact such investments.
- Bankers and investors now consider the cryptocurrency market at par with derivatives. The NYSE plans Bitcoin futures through a platform called **Bakkt**.

Conclusion:

Underlying the crypto movement is a libertarian belief: Cryptos are an alternative asset to fiat currencies; controlled by none, they cannot be manipulated by governments with vested interests. Legalising the cryptomarket can help beneficiaries emerge from the shadows and make productive investments in an economy witnessing a digital transformation. Crypto conduct calls for regulation, but not outright criminalization.

Discuss the ethical and social concerns involved in Cord blood banking. (250 words)

Reference: [The Hindu](#)

Why this question:

Poona Citizen Doctor Forum (PCDF), a body that aims to rebuild trust among citizens and doctors, and promote ethical rational medical practice, has come forward to bust the aggressively promoted concept of cord blood banking.

Key demand of the question:

The answer must discuss the ethical and social concerns involved in Cord blood banking.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly define what cord blood banking is.

Body:

Cord blood (short for umbilical cord blood) is the blood that remains in the umbilical cord and placenta post-delivery. It contains special cells called hematopoietic stem cells that can be used to treat some types of diseases.

Discuss what the issues are with cord blood banking.

Over the past decade, stem cell banking has been aggressively marketed even as its use is still in experimental stages. But these companies charge enormous fees from parents to preserve cells.

Bring out the ethical concerns involved in detail.

Conclusion:

Suggest ways to address the ethical concerns involved and assert upon the need to have policies and frameworks to regulate them.

Introduction



Cord blood (short for umbilical cord blood) is the blood that remains in the umbilical cord and placenta post-delivery. At or near term, there is a maternal–fetal transfer of cells to boost the immune systems of both the mother and baby in preparation for labor. This makes cord blood at the time of delivery a rich source of stem cells and other cells of the immune system.

- Cord blood banking is the process of collecting the cord blood and extracting and cryogenically freezing its stem cells and other cells of the immune system for potential future medical use.
- Cord blood banking is more often referred to as **stem cell banking**.

Body

Social Issues and concerns with stem cell banking

- **Effectiveness: Cord Blood** is recommended as a source of hematopoietic stem cell (derived from bone marrow, peripheral blood, or umbilical cord blood) transplantation for hematological cancers and disorders where its use is recommended. For all other conditions, the use of cord blood as a source of stem cells is not yet established, as per ICMR.
- **Nexus between Doctors and Stem Cell Companies:** Activists say stem cell banking companies start approaching their prospective customers much before the delivery and offer competitive packages.
- **Expensive:** Private clinics charge exorbitant prices for storage, under the pretext that Cord blood cells supposedly helps the body re-generate tissues and systems and it's use as a regenerative medicine. Also, due to huge income inequality, many would find it hard to afford.
- **Not a biological insurance:** Although commercial cord blood banks often bill their services as “biological insurance” against future diseases, the blood doesn't often get used.
 - One study says the chance that a child will use their cord blood over their lifetime is between 1 in 400 and 1 in 200,000.
 - Current research says the stored blood may only be useful for 15 years.
- **Research is in infancy:** More work needs to be done to utilise the cord blood cells for treatment of diseases like Alzheimer's, Parkinson's etc. The stored blood can't always be used, even if the person develops a disease later on, because if the disease was caused by a genetic mutation, it would also be in the stem cells.

Ethical issues involved

- **Commercialization:** Luring unsuspecting parents into stem cell banking with profit as motive.
- Leveraging the **emotive** factor of child birth for expensive stem cell storage which may not be used or be effective.
- **Unethical nexus** between Doctors and Private stem cell banks, which extract data of the expecting parents.
- **Data privacy** of the to-be parents are revealed without consent
- **Ownership** of the deposit made is still controversial
- **Data Sharing:** Medical History of the family is often collected in the process. The sharing of this information is not regulated and may be sold to insurance companies for profit.
- **Public banks vs Private banks:** There is generally agreement or consensus in the guidelines that public storage for allogeneic transplants is preferable and that private storage should be discouraged.
- **Future prospects:** As the process is expensive, affordability is low. In future, if medical advancements are made, the benefit is accrued to a few wealthy individuals. This may create humanitarian issues.



Conclusion

The American Congress of Obstetricians and Gynecologists and the American Academy of Pediatrics and Indian Council of Medical Research ICMR don't recommend routine cord blood storage. The groups say private banks should only be used when there's a sibling with a medical condition who could benefit from the stem cells. Families are encouraged to donate stem cells to a public bank to help others.

Researchers are also exploring how cord blood has the ability to cross the blood–brain barrier and differentiate into neurons and other brain cells, which may be instrumental in treating conditions that have been untreatable up to this point. However, it is still in the experimental phase.

A law in this regard can help in regulating the area of work and address the ethical issues.

“Blockchain technology solutions are facilitating newer ways of doing business with remarkable efficiency”, Elucidate. (250 words)

Reference: [Financial Express](#)

Why this question:

The article brings out newer insights of the utility of Blockchain technology and in what way it is making the businesses of today more and more effective and efficient.

Key demand of the question:

The answer must discuss the significance of the applications of Blockchain technology to Businesses of today's world.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Define what Blockchain technology is.

Body:

Explain that Blockchain solutions are transforming the way companies and individuals do business, locally and globally, by simplifying transactions and increasing their efficiency.

Discuss that Blockchain works by establishing a peer-to-peer network where each participant maintains a database—a ledger—of all the network's transactions. Compiled into “blocks”, transactions are then linked together using cryptographic hashes forming a “chain”. The cryptographically-connected blocks create an underlying data layer that provides a common, unified view of information for parties who can access the data. This gives organizations a new way of establishing trusted business networks.

List down the advantages and applications.

Highlight the possible challenges involved.

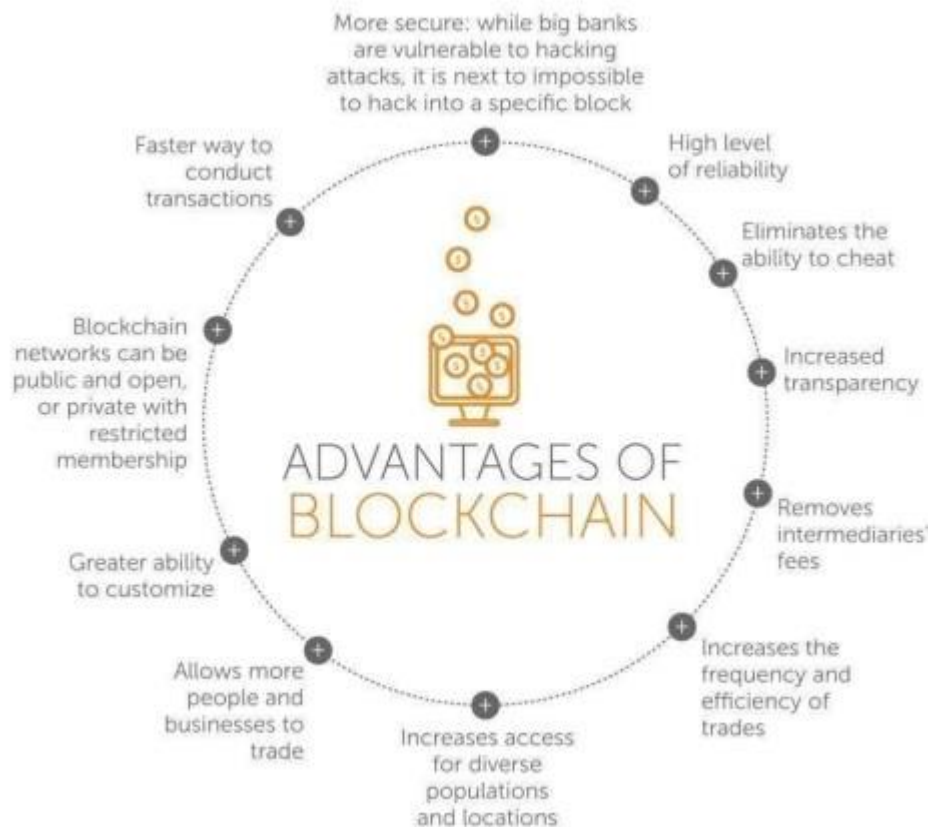
Conclusion:

Conclude by reasserting the significance of such technology.

Introduction:

Blockchains are a new data structure that is secure, cryptography-based, and distributed across a network. The technology supports cryptocurrencies such as Bitcoin, and the transfer of any data or digital asset. Anything recorded on them cannot be deleted, and is instantly uploaded to all users on that blockchain. Blockchain is being researched across the banking and financial services industries.

Body:



Prospects:

- Bitcoin is just one of the applications for the technology, whose use is being tested across industries.
- Healthcare, banking, education, agriculture, electricity distribution and land records are sectors that could benefit.
- Blockchain-powered smart contracts, where every piece of information is recorded can enhance ease of doing business.
- It will augment the credibility, accuracy and efficiency of a contract while reducing the risk of frauds, substantially.
- Blockchain could play a crucial part in health insurance claims management by reducing the risk of insurance claim frauds.
- The technology can also be used to prevent the sale of spurious drugs in the country by tracking every step of the supply chain network.
- Artificial Intelligence and Internet of Things (IoT) can gain immensely from blockchain applications.
- In an IoT world, thousands of devices would need to rapidly and seamlessly transact with each other in real time.
- The adoption of blockchain by India's banks could help avert frauds such as the one at Punjab National Bank as the technology updates information across all users simultaneously.
- It could be used to further strengthen our national institutions, including the judiciary and the Election Commission.
- Critical citizen information like land records, census data, birth and death records, business licenses, criminal records, intellectual property registry, electoral rolls could all be maintained as blockchain-powered, tamper-proof public ledgers.



Challenges:

- Blockchain technology is expensive to initially put it in place.
- The massive usage of energy for the functioning of blockchain.
- Safeguarding the privacy of individuals and companies as blockchains are usually open ledgers for everyone to see.
- Knowledge of the benefits of distributed ledger technology is still limited.
- If automated risk management, smart contracts, and similar tools are deployed across a network, cascades of rapid and hard-to-control obligations and liquidity flows could propagate across a network.
- This interdependence will likely call for creative organizational thinking to address the need for governance and strong risk management

Way Forward:

- Blockchain, with all its possibilities, needs a serious look at its vulnerabilities and commerciality.
- Before introducing blockchain into the public sector data-handling system, we need a robust and informative data repository.
- Linking **IndiaChain** with Aadhar, thus creating a secure personal identity for all Indians.
- Proper regulations for the use of blockchain technology in the country.
- Identifying and resolving key issues and challenges in implementing this technology, the prime amongst those being data privacy.
- India should effectively channel its technical human capital surplus to position itself as one of the pioneers during this upcoming wave of innovation.

“Artificial intelligence is rising to change every industry, but we have to understand its limits”. In the backdrop of the statement, discuss the benefits and disputes related with AI in Indian context. (250 words)

Reference: [Live Mint](https://www.livemint.com)

Why this question:

The article deals with the myths and realities associated with artificial intelligence, thus the context of the question.

Key demand of the question:

The answer must discuss the possible advantages and limitations that AI comes with and what way our country should tackle it.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Define AI and its contributions in general.

Body:

Explain that Artificial intelligence (AI) is competent to have a revolutionary impact on businesses and consumers globally.

List down the advantages of AI in detail.

Discuss the concerns associated with AI such as – job losses, robot bosses, human errors, high cost, ethical issues etc.

Conclusion:

Conclude with what needs to be done.

**Introduction:**

Artificial intelligence (AI) is the branch of computer science concerned with making computers behave like humans. AI refers to the ability of machines to perform cognitive tasks like thinking, perceiving, learning, problem solving and decision

Artificial Intelligence (AI) brings in a host of real-world applications which had earlier merely been a subject of science fiction novels or movies. The breakthroughs such as the Weather Company's to be launched, **the GRAF model** capable of predicting a thunderstorm virtually anywhere on the planet every hour and other such applications are useful. AI has made inroads to automation and decision support systems to complement or augment human abilities.

Body:**AI is being widely used today as shown below**

- AI enhances the ability of computer systems to learn from their experiences over time, makes them capable of reasoning, perceiving relationships and analogies, helps solve problems, as well as respond in natural languages and adapt to new conditions.
- AI allows machines to sense and comprehend their surroundings and act according to their own intelligence or learning.
- **Governance:**
 - As India is poised for reforms in governance, AI can actually help with process optimization and cost savings for the government, in addition to solving some strategic problems or assisting in decision making.
- **Economy:**
 - Economic growth is vital for development, and the next generation of economic growth is anticipated to be fueled by technologies relating to big data, block chain, quantum computing and AI. These game changing technologies will spur innovation, create value for the investors, generate specialized job domains and as a result, propel economic growth.
 - Issues such as tax evasion, money laundering etc can be easily addressed using AI.
 - 68% of Indian business decision-makers believe AI will help their business in various ways such as boosting productivity, generating growth and addressing societal issues
 - India has one of the world's largest automotive industries, with a significant production and consumption base. AI applications have vast scope in the automotive sector, ranging from enhancing fuel efficiency to passenger safety to the concept of self-driving vehicles.
- **Healthcare:**
 - Healthcare sector in India is burgeoning with innovation and demand, having business models unique to the Indian requirements and spending power.
 - AI can augment the potential of government and private sector to deliver healthcare services and products with improved drug safety, better diagnosis and analysis of clinical reports for preventive and accurate treatment.
- **Defence:**
 - More advanced applications of AI extend to the domains of foreign, defence and security policies. Deep learning in AI can unravel futuristic functions by augmenting decision making ability of the humans with access to the information derived from large data sets.
- **Security:**



- AI has many peace time applications as well. It can be used to train soldiers and pilots, simulate war-game, synthesize information from surveillance systems and address critical problems in optimizing logistics, fleet management and maintenance
- Vision and Voice systems to interpret and comprehend visual inputs such as images, clinical diagnosis and facial recognition or voice inputs to recognize the source of the sound.
- Law enforcement or internal security requirements for detecting and recognizing individuals or criminals, with multitudes of data streaming from police databases or the network of surveillance cameras.
- Banking and financial services for fraud detection using advanced algorithms to identify patterns in transactions and consumer behaviours which are risk prone.
- AI is also helping insurance providers arrive at better risk assessment.
- Countries such as India can benefit a lot from the use of AI by focusing on sectors such agriculture, manufacturing, infrastructure etc.

Concerns and Risks:

- Lack of broad based expertise in research and application of AI.
- Absence of enabling data ecosystems –access to intelligent data.
- Data usage without consent, data selection bias and the resulting discrimination of AI models.
- High resource cost and low awareness for adoption of AI.
- Privacy and security, including a lack of formal regulations around anonymisation of data.
- Absence of collaborative approach to adoption and application of AI.
- Challenges remain in respect of applying stringent and narrowly focused patent laws to AI applications
- Indian technical universities are not doing enough to strengthen the AI ecosystem unlike their global counterparts.

Way forward:

- AI research in India is still in its infancy and requires largescale concerted and collaborative interventions.
- Skilling and reskilling of workforce forms an integral part of adopting AI.
- Adoption of decentralized teaching mechanisms, working in collaboration with the private sector and educational institutions.
- Adoption of AI across the value chain viz. startups, private sector, PSUs and government entities, will truly unlock the potential by creating a virtuous cycle of supply and demand.
- Data is one of the primary drivers of AI solutions, and thus appropriate handling of data, ensuring privacy and security is of prime importance.
- Establishing data protection frameworks and adoption of international standards.
- In order for India to ride the AI innovation wave, a robust intellectual property framework is required.

Conclusion:

“The greatest enemy of knowledge is not ignorance; it is the illusion of knowledge” was what **Stephen Hawking** said. The transformative capability of AI in India is huge, and must be rooted in an egalitarian ethical basis. Any institutional framework for AI should have a multidisciplinary and multi-stakeholder approach, and have an explicit focus on the ethical basis.



Conservation, environmental pollution and degradation, environmental impact assessment

Discuss the causes and concerns over red snow in Antarctica. (250 words)

Reference: [Indian Express](#)

Why this question:

The article captures the formation of Red snow in the Antarctica and the concerns posed by it.

Key demand of the question:

The answer must discuss in detail the causes and concerns posed by the 'Red snow' in the Antarctica.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain "Red snow"; it is a phenomenon that has been known since ancient times.

Body:

Explain the basic features of it; It is the algae that give the snow its red tinge. This alga species, *Chlamydomonas Chlamydomonas nivalis*, exists in snow in the polar and glacial regions, and carries a red pigment to keep itself warm. Discuss briefly the history and the discovery of red snow. Explain the causative factors responsible for the formation of the Red snow. Discuss the impact of it on the climate of the world and more so specifically upon the Antarctica. Elaborate on why it is a cause of concern.

Conclusion:

Conclude with solutions to address the issue and way forward.

Introduction:

"Red snow" or "watermelon" is a phenomenon that has been known since ancient times. Now, it raises concerns about climate change. For a few weeks now, snow around Ukraine's Vernadsky Research Base, located off the coast of Antarctica's northernmost peninsula has turned red. The snow is red because of a red-pigmented, microscopic algae called **Chlamydomonas nivalis chlamydomonas**, which thrives in freezing water as the ice melts.

Body:

Causes:

- Earlier this month, Antarctica experienced record high temperatures, causing the southernmost continent's ice caps to melt at an unprecedented rate.
- As a result, Eagle Island, a small island off Antarctica's northwest tip, experienced peak melt; brown rock appeared from beneath the ice and several ponds of melt water accumulated at the center.
- And with these unprecedented temperatures, the algae that normally thrive in freezing water and lie dormant across the continent's snow and ice are now in full bloom and cover the Antarctic Peninsula with blood-red, flower-like spores.
- The alga species, **Chlamydomonas nivalis chlamydomonas**, exists in snow in the polar and glacial regions, and carries a red pigment to keep itself warm.
- As per a report of 2016 in New York Times, algae found around the Ukrainian research base grow well in freezing temperatures and liquid water.
- During the summer times these typically green algae produces a natural sunscreen. This sunscreen colors the snow in shades of red and pink.



- It doesn't turn red until the weather warms up.
- The cell's carotenoids—the same pigment that gives pumpkins and carrots their orange hue—absorb heat and protect the algae from ultraviolet light, almost like sunscreen.

Concerns:

- The red snow causes the surrounding ice to melt faster, a 2017 study from Alaska Pacific University said.
- The more the algae packed together, the redder the snow.
- And the darker the tinge, the more the heat absorbed by the snow. Subsequently, the glaciers and ice sheets will melt with global warming faster.
- While the melt is good for the microbes that need the liquid water to survive and thrive, it's bad for glaciers that are already melting from a myriad of other causes, the study said.
- These algae change the snow's albedo — which refers to the amount of light or radiation the snow surface is able to reflect back.
- Changes in albedo lead to more melting. In the melting of snow in the Arctic, the key drivers have been snow and ice albedo, according to a 2016 study in the journal Nature.

Conclusion:

As human interventions are increasing, climate and ecosystems are changing and having adverse effects. Some extreme algal blooms have appeared in the oceans of the world. These have different features and mostly have adverse effects hampering the climatic conditions. The melting of the snow and glaciers is not a good indication as it affects the heat balance of the earth in turn triggering the butterfly effect.

*Extra information: In **Spain's Tossa de Mar**, for example, **sea foam** invaded the coastal town's beaches after a large storm brought strong winds and waves. Along the **coast of the East China Sea and Taiwan's Matsu Islands**, **toxic bioluminescent algae** called **dinoflagellates** light up the ocean surface with a bright blue glow. And a **rust-colored kind of alga**, **Karenia brevis**, blooms along the **Florida coast** and releases a toxin that targets fishes' central nervous system.*

Recent activities in Climate change and geopolitics meet to yield locust swarms that could disturb the productivity of Indian crops. Examine. (250 words)

Reference: [Live mint](#)

Why this question:

Reuters suggest that while locust swarms continue to plague African countries, for now, the outbreak has tapered down in India with swarms headed back towards Sindh and Baluchistan. Thus the question.

Key demand of the question:

The answer must discuss the issues and concerns posed by the spread of locust swarms and the interlinkages with climate change and the changing geopolitics.

Directive:

Examine – When asked to 'Examine', we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Briefly explain what the problem of locust swarms is.

Body:



Explain first the impact of changing climate and geopolitics. Discuss the issues of locust swarms; explain how it has been impacting the productivity of crops in general. Present the case of it in India. Take cues from the article and explain the need to recognise the issue and address it.

Conclusion:

Conclude by suggesting way forward.

Introduction:

Locusts are a group of short-horned grasshoppers that multiply in numbers as they migrate long distances in destructive swarms (up to 150km in one day). In recent weeks, locust swarms have attacked crops in more than a dozen countries in Asia and Africa.

Body:

Locusts:

- They are a collection of certain species of short-horned grasshoppers in the family Acrididae that have a swarming phase.
- These insects are usually solitary, but under certain circumstances they become more abundant and change their behaviour and habits, becoming gregarious.
- No taxonomic distinction is made between locust and grasshopper species; the basis for the definition is whether a species forms swarms under intermittently suitable conditions.
- These grasshoppers are innocuous, their numbers are low, and they do not pose a major economic threat to agriculture.
- However, under suitable conditions of drought followed by rapid vegetation growth, serotonin in their brains triggers a dramatic set of changes: they start to breed abundantly, becoming gregarious and nomadic (loosely described as migratory) when their populations become dense enough.
- They form bands of wingless nymphs which later become swarms of winged adults. Both the bands and the swarms move around and rapidly strip fields and cause damage to crops.
- The adults are powerful fliers; they can travel great distances, consuming most of the green vegetation wherever the swarm settles

Relationship between locusts and climate change:

- During quiet periods—known as recessions—desert locusts are usually restricted to the semi-arid and arid deserts of Africa, the Near East and South-West Asia that receive less than 200 mm of rain annually.
- In normal conditions, locust numbers decrease either by natural mortality or through migration.
- However, the last five years have been hotter than any other since the industrial revolution and since 2009.
- Studies have linked a hotter climate to more damaging locust swarms, leaving Africa disproportionately affected—20 of the fastest warming countries globally are in Africa.
- Wet weather also favours multiplication of locusts. Widespread, above average rain that pounded the Horn of Africa from October to December 2019 were up to 400 per cent above normal rainfall amount.
- These abnormal rains were caused by the Indian Ocean dipole, a phenomenon accentuated by climate change.

Measures to control locusts:



- Controlling desert locust swarms primarily uses organophosphate chemicals by vehicle-mounted and aerial sprayers, and to a lesser extent by knapsack and hand-held sprayers.
- Extensive research is ongoing regarding biological control and other means of non-chemical control with the current focus on pathogens and insect growth regulators. Control by natural predators and parasites so far is limited since locusts can quickly move away from most natural enemies.
- While people and birds often eat locusts, this is not enough to significantly reduce population levels over large areas.

Way forward to deal with climate change:

- While climate change is a global phenomenon, Africa stands out for its vulnerability which is driven primarily by the prevailing low levels of socioeconomic development. Persons living in poverty face compounding vulnerabilities to climate change impacts because they lack the resources to quickly recover from its effects.
- In this case, desert locusts are ravaging crops in the field before harvesting, wiping out livestock and wildlife feed, and with them savings, assets and livelihoods.
- Deployment of climate action solutions such as decentralizing solar dryers to agro-value chain actors can ensure that they can earn up to 30 times more by being able to preserve their harvest and sell during the offseason or gives them flexibility to compensate for unpredictable events such as these locust swarms.
- It can also create enterprise opportunities for auxiliary value chains of fabricating these solar dryers. Interventions like this are critical to increase climate resilience for some of the most vulnerable communities across the continent.

What is Black Carbon? Explain the impact of recently witnessed black carbon spikes in the Himalayan glaciers. (250 words)

Reference: [The Hindu](#)

Why this question:

According to a research done by the Wadia Institute of Himalayan Geology, the concentration of black carbon on Gangotri glacier has almost doubled in the past few years primarily because of agricultural burning and forest fires.

Key demand of the question:

The question is based on the concept of Black carbon and the impact of black carbon spikes that were recently witnessed in the Himalayan glaciers.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Define what Black carbon is. Black carbon is a kind of an aerosol. An aerosol is a suspension of fine solid particles or liquid droplets in the air.

Body:

Discuss about Black carbon, its basic features. Among aerosols (such as brown carbon, sulphates), Black Carbon (BC) has been recognized as the second most important anthropogenic agent for climate change and the primary marker to understand the adverse effects caused by air pollution. It gets emitted from gas and diesel engines, coal-fired power plants, and other sources that burn fossil fuel. It comprises a significant portion of particulate matter or PM, which is an air pollutant. Discuss



the impact of the recent black carbon spikes in the Himalayan glaciers. Explain what needs to be done.

Conclusion:

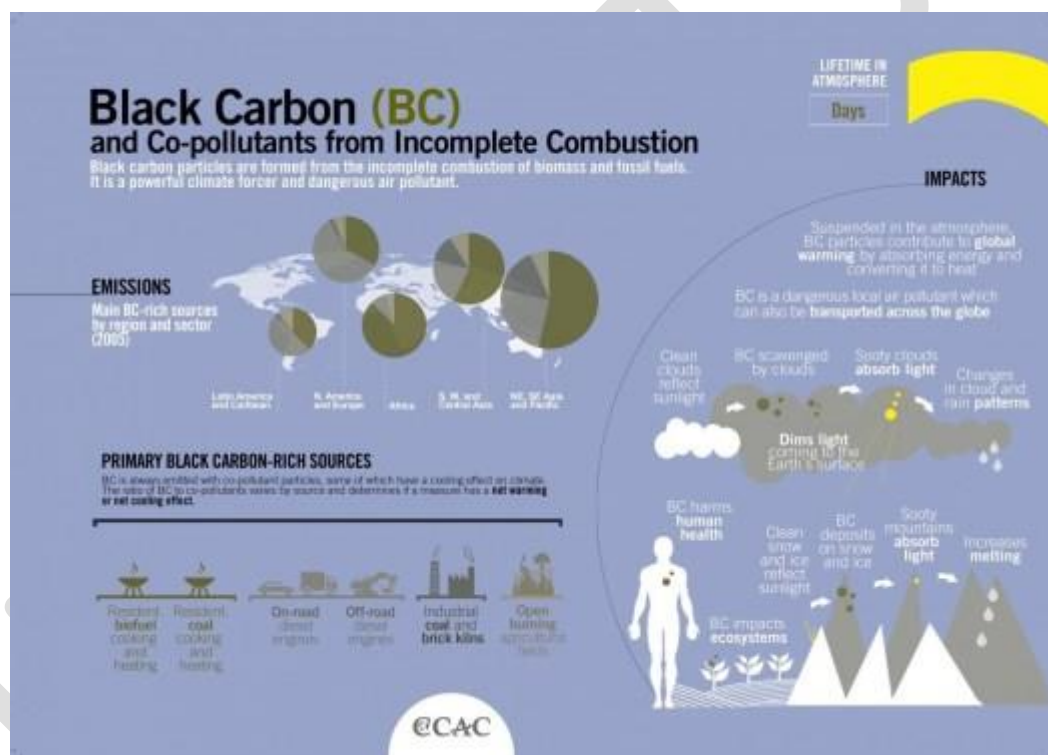
The Black Carbon (BC) aerosols contribute significantly towards global warming due to its light-absorbing nature. Their presence in the eco-sensitive zone, such as the Himalayan glacier valleys, is a matter of serious concern and needs to be meticulously monitored.

Introduction:

Black carbon is a potent climate-warming component of particulate matter formed by the incomplete combustion of fossil fuels, wood and other fuels. Black carbon is a short-lived climate pollutant with a lifetime of only days to weeks after release in the atmosphere. During this short period of time, black carbon can have significant direct and indirect impacts on the climate, glacial regions, agriculture and human health.

Black carbon concentrations near the Gangotri glacier rose 400 times in summer due to forest fires and stubble burning from agricultural waste, and triggered glacial melt, says a study by scientists at the Wadia Institute of Himalayan Geology (WIHG).

Body:



Black Carbon is produced both naturally and by human activities as a result of the incomplete combustion of fossil fuels, biofuels, and biomass. Primary sources include emissions from diesel engines, cook stoves, wood burning and forest fires. **India is the second largest emitter of black carbon in the world**, with emissions expected to increase dramatically in the coming decades, says an April 2019 study in the journal Atmospheric Research, with the Indo Gangetic plains said to be the largest contributor.

Key findings:



- Black carbon concentrations near the Gangotri glacier rose 400 times in summer due to forest fires and stubble burning from agricultural waste, and triggered glacial melt.
- The monthly mean concentration of EBC (equivalent black carbon) was found to be minimum in August and maximum in the month of May. The observed seasonal mean concentrations of EBC indicated a pristine glacial source and an absence of EBC sources in the locality.
- The concentration varied from a minimum of 0.01µg/cubic metre in winter to 4.62µg/cubic metre during summer.
- Being a pristine zone far from sources of pollution, the measurements are critical to establishing a baseline for pollution loads and estimating the contribution of various sources to pollution.

The impact of black carbon spikes in the Himalayan glaciers:

- The fine particles absorb light and about a million times more energy than carbon dioxide.
- It is said to be the second largest contributor to climate change after CO₂. But unlike CO₂, which can stay in the atmosphere for years together, black carbon is short-lived and remains in the atmosphere only for days to weeks before it descends as rain or snow.
- Black carbon absorbs solar energy and warms the atmosphere. When it falls to earth with precipitation, it darkens the surface of snow and ice, reducing their albedo (the reflecting power of a surface), warming the snow, and hastening melting.
- India is the second largest emitter of black carbon in the world, with emissions expected to increase dramatically in the coming decades, says an April 2019 study in the journal Atmospheric Research, with the Indo Gangetic plains said to be the largest contributor.

Impact of Human health:

- Concentration of black carbon particles was highest in the placentas of women who are most exposed to airborne pollutants in their daily life.
- Inhalation of these particles by the mother gets translocated from the mothers' lungs to the placenta, resulting in life-long changes to the development of the baby along with permanently damaging the lung tissues.
- The link between exposure to dirty air and increased cases of miscarriages, premature births, and low birth weights which in turn increases the chances for diabetes, asthma, stroke, heart disease and a lot of other conditions, has been established in this study.

Impacts on vegetation and ecosystems:

- Black carbon can affect the health of ecosystems in several ways: by depositing on plant leaves and increasing their temperature, dimming sunlight that reaches the earth, and modifying rainfall patterns.
- Changing rain patterns can have far-reaching consequences for both ecosystems and human livelihoods, for example by disrupting monsoons, which are critical for agriculture in large parts of Asia and Africa.

Way forward:

- **HOUSEHOLD ENERGY**
 - Replace traditional cooking to clean burning modern fuel cookstoves
 - Replace traditional cooking and heating with clean-burning biomass stoves



- Eliminate kerosene lamps
- Replace lump coal with coal briquettes for cooking and heating
- Replace wood stove and burners with pellet stoves and boilers
- **INDUSTRIAL PRODUCTION**
 - Modernize traditional brick kilns to vertical shaft brick kilns
 - Modernize coke ovens to recovery ovens
- Use diesel particular filters for road and off-road vehicles
- **TRANSPORT**
 - Fast transition to Euro VI/6 vehicles and soot-free buses and trucks
 - Eliminate high-emitting diesel vehicles
- **AGRICULTURE**
 - Ban open-field burning of agricultural waste
- **FOSSIL FUELS**
 - Capture and improve oil flaring and gas production
- **WASTE MANAGEMENT**
 - Ban open burning of municipal waste

Discuss the rising threat and impact of coral bleaching on coral reefs of the World. (250 words)

Reference: [Indian Express](#), [UN.ORG](#)

Why this question:

The article presents a picture of rising threat and impact of coral bleaching on coral reefs of the World. Scientists have warned that **the Great Barrier Reef** will face a critical period of heat stress over the coming weeks; following the most widespread coral bleaching the natural world has ever endured.

Key demand of the question:

The answer must discuss the effect of coral bleaching on the coral reefs of the world.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly define what corals are, what coral bleaching is.

Body:

Coral reefs are important hotspots of biodiversity in the ocean. Corals are animals in the same class (Cnidarian) as jellyfish and anemones. They consist of individual polyps that get together and build reefs. Discuss the significance of coral reefs first. Explain then the threats that they are possibly facing. Discuss the factors responsible for Coral Bleaching. Highlight the consequences of it on the ecology of coral reefs around the world. Suggest what needs to be done to overcome the challenge.

Conclusion:

Conclude with way forward.

Introduction

A coral reef is an underwater ecosystem characterized by reef-building corals. Reefs are formed of colonies of coral polyps held together by calcium carbonate. Most coral reefs are built



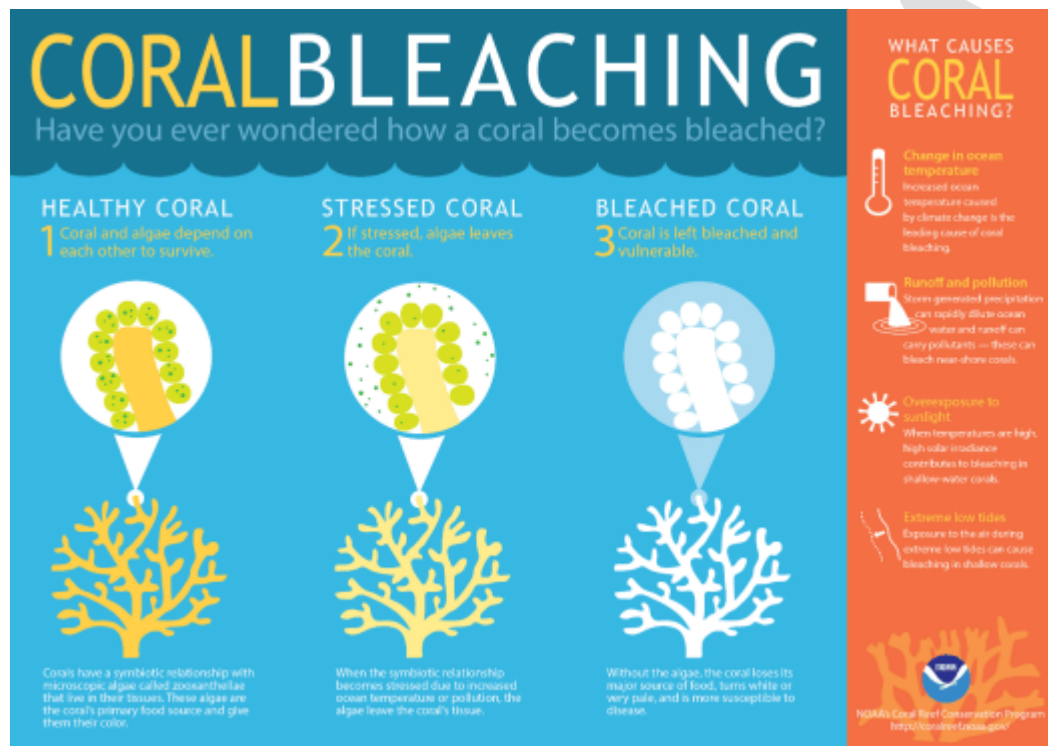
from stony corals, whose polyps cluster in groups. Most reefs grow best in warm, shallow, clear, sunny water.

They occupy less than **0.1% of the world's ocean** area, yet they provide a home for at least **25%** of all marine species. Hence they are also known as “**rainforests of the ocean**”.

Coral Bleaching: When corals are stressed by changes in conditions such as temperature, light, or nutrients, they expel the symbiotic algae living in their tissues, causing them to turn **completely white**.

Body

Coral Bleaching



Rising threat of bleaching to Coral Reefs

Coral reef bleaching is caused by various anthropogenic and natural variations in the reef environment including sea temperature, solar irradiance, sedimentation, xenobiotics, subaerial exposure, inorganic nutrients, freshwater dilution, and epizootics. Coral bleaching events have been increasing in both frequency and extent worldwide in the past 20 years. Global climate change may play a role in the increase in coral bleaching events, and could cause the destruction of major reef tracts and the extinction of many coral species.

Natural Causes

- **Climate Change**
 - **Rising Sea surface temperature:** The main cause of coral bleaching is heat stress resulting from high sea temperatures. Temperature increases of only one degree Celsius for only four weeks can trigger bleaching events.



- If these temperatures persist for longer periods (eight weeks or more) corals begin to die.
- **El-Nino:** Frequency of storms such as those associated with **El Niño Southern Oscillation** events has resulted in the devastation of very large areas of coral. In fact, 16% of the world's corals were affected by the 1997-1998 El-Nino event.
- **Increased solar irradiance:** Bleaching during the summer months, during seasonal temperature and irradiance maxima often occurs disproportionately in shallow-living corals and on the exposed summits of colonies. Solar radiation has been suspected to play a role in coral bleaching. Both photosynthetically active radiation (PAR, 400-700nm) and ultraviolet radiation (UVR, 280-400nm) have been implicated in bleaching.
- **Freshwater inundation:** Strong cyclones and storms causes heavy precipitation and strongly dilutes the ocean water near the shore. This can disrupt Saline content (ppm) of the shallow water coral and induces bleaching.
- **Subaerial exposure:** Sudden exposure of reef flat corals to the atmosphere during events such as extreme low tides, ENSO-related sea level drops or tectonic uplift can potentially induce bleaching. The consequent exposure to high or low temperatures, increased solar radiation, desiccation, and sea water dilution by heavy rains could all play a role in zooxanthellae loss, but could also very well lead to coral death.
- **Cold-Stress Event:** In January 2010, cold water temperatures in the Florida Keys caused a coral bleaching event that resulted in some coral death.
- **Epizootics:** Pathogen induced bleaching is different from other sorts of bleaching. Most coral diseases cause patchy or whole colony death and sloughing of soft tissues, resulting in a white skeleton (not to be confused with bleached corals). A few pathogens have been identified the cause translucent white tissues, a protozoan.

Anthropogenic activities

- **Increasing Green House Gas Emissions**
- **CO2 Emissions:** Rising Emission intensity from fossil fuels, coal and factories are heating up the planet and increasing carbon fertilization in oceans. Harmful Algal Blooms leads to turbidity of water, thereby causing bleaching.
- **Pollutant Runoff:** **Pollutants** from river water and industrial affluent leads to bleaching.
- **Poor Quality water:** This can occur due to toxic sediment that comes along with the water that joins the sea. Corals cannot withstand toxicity and thus expel the algae.

Impact of Coral Bleaching on Coral Reefs

Corals begin to starve once they bleach. While some corals are able to feed themselves, most corals struggle to survive without their zooxanthellae. If conditions return to normal, corals can regain their zooxanthellae, return to their normal colour and survive. However, this stress is likely to cause decreased coral growth and reproduction, and increased susceptibility to disease.

- **Great Barrier Reef:** Over 2016 and 2017, Great Barrier Reef suffered back-to-back bleaching, leaving half of the shallow water corals dead. **One-third of the 3,863** reefs that make up the Great Barrier Reef went through a catastrophic die-off.
- **Biodiversity of Ocean Ecosystem** These sessile organisms also provide refuge and shelter for many mobile animals. The entire biodiversity sustaining on the coral reef will be affected.



- **Fish Species:** 25% of fish species spend some part of their life cycle in reefs, despite the fact that they cover less than 1% of ocean floor.
- **Carbon sink:** In addition, sessile algae and the coral–algal symbiosis determine carbon fixation and its pathways into organic and inorganic forms. These are the basis for the energy that supports the ecosystem and deposits the calcium carbonate skeletons that create the reef.
- **Loss of livelihoods:** Countries in Southeast Asia such as Indonesia, Thailand and Philippines would bear the brunt of the damage, as it will reduce the fish stock rapidly.
- **Economic Impact:** Both fishing and tourism will be hit hard. Many communities in Queensland had to look for alternate livelihoods due to coral bleaching and loss of ocean ecosystem.
- **Barrier to storm:** Coral reefs act as key barrier to guard against incoming storms and mitigate the damage done by surging seas.

Conclusion

If a global warming trend impacts on shallow tropical and subtropical seas, we may expect an increase in the frequency, severity and scale of coral reef bleaching. Coral mortality could exceed 95% regionally with species extirpation and extinctions. A conservative temperature increase of 1-2 degrees C would cause regions between 20-30 degrees N to experience sustained warming that falls within the lethal limits of most reef-building coral species. In conjunction with sea temperature rise would be a sea level rise, and it has been suggested that sea level rise would suppress coral growth or kill many corals through drowning or lower light levels.

Even if significant sea warming and elevated irradiance levels do not occur, coral reef degradation from anthropogenic pollution and overexploitation will still continue, a result of unrelenting human population growth.

“Water and climate change”, explain how the two are inextricably linked? Illustrate with examples. (250 words)

Reference: [WorldWaterDay.org](https://www.worldwaterday.org)

Why this question:

March 22 (Sunday) was World Water Day. Thus the context of the question.

Key demand of the question:

The question aims to discuss the inextricable linkages between water and climate change, one must explain it using suitable illustrations.

Directive:

Illustrate – A similar instruction to ‘explain’ whereby you are asked to show the workings of something, making use of definite examples and statistics if appropriate to add weight to your explanation.

Structure of the answer:

Introduction:

Briefly highlight the significance of water in general to the entire world.

Body:

Climate delay is almost as dangerous as climate denial. Every country in the world must work more quickly. Extreme weather events are making water scarcer, more unpredictable, more polluted or all three. Humans need water to survive, as do all the systems we rely on: sanitation, healthcare, education, business and industry.

Explain then, how Water can help fight climate change.

Discuss how and why Climate policy makers must put water at the heart of action plans.

Present the case of health outbreak and discuss how water plays a key role in it.

Conclusion:

Conclude with way forward.

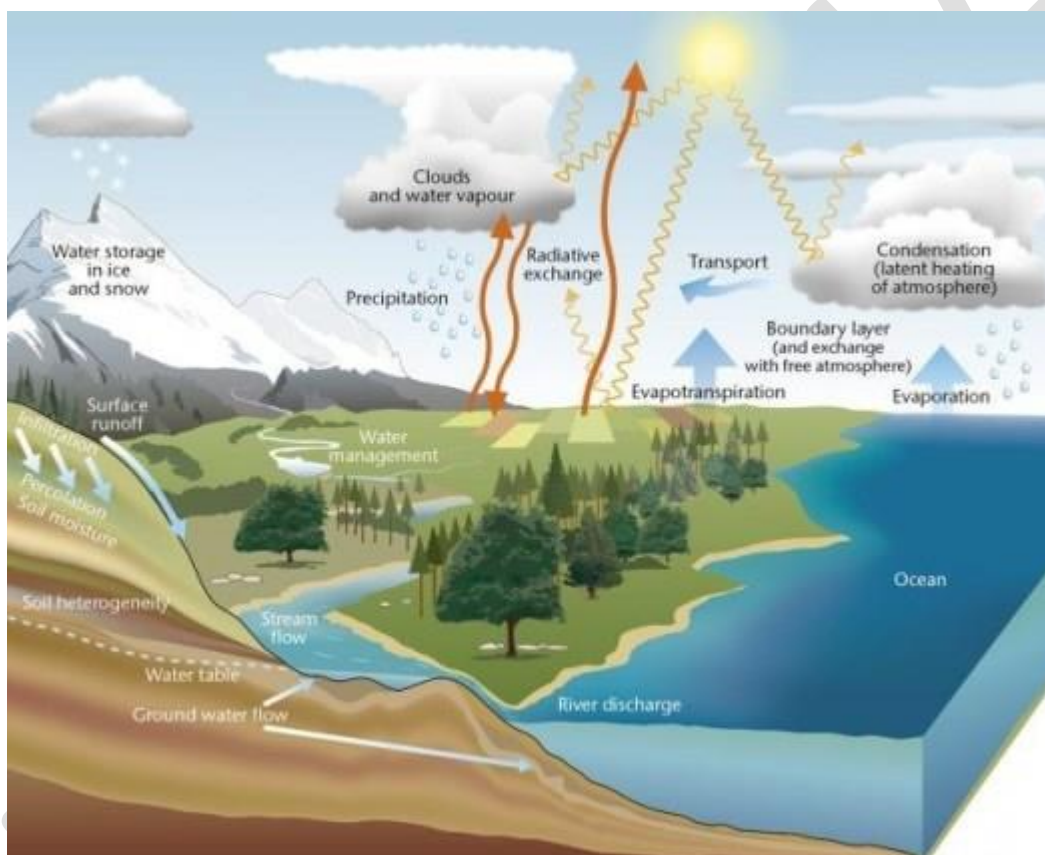


Introduction:

Climate change impacts the world's water in complex ways. Climate change manifests itself primarily through changes in the water cycle. As climate changes, droughts, floods, melting glaciers, sea-level rise and storms intensify or alter, often with severe consequences. Climate change impacts have direct consequences for water security and conflict.

Body:

The 2020 edition of the World Water Development Report (WWDR 2020) entitled 'Water and Climate Change' aims at helping the water community to tackle the challenges of climate change and informing the climate change community about the opportunities that improved water management offers in terms of adaptation and mitigation.



Interlink between climate change and water:

- The ever increasing dependence on ground water and its continuous excessive exploitation is reducing the ground water level and adversely affecting the quality of drinking water supply, which is a complex challenge.
- Drying of water sources, rapid depletion of ground water table, recurrence of drought and deteriorating water management in different states are presenting different types of challenges.
- Repairs of closed bore pumps, water supply pipelines are not being done on time due to which there is a special crisis in the area.
- Due to the pressure of industrialization and urbanization, the sources of water have been destroyed. This worrying aspect was consistently ignored by various governments.



- Fluoride, nitrate, pesticides, etc. were found to be present in more than acceptable limits in the ground water of most cities and about 19,000 villages. Water quality is challenging in this regard.
- Studies sponsored by the World Bank and UNICEF show that not only is drinking water inadequate in rural India but its imbalance is widespread across the country.
- Waterborne diseases are the biggest health challenge in India. According to official statistics published in the National Health Profile of India-2018, about one quarter or four cases reported in India are due to communicable diseases and one in every five deaths is due to waterborne diseases.
- Water crisis has become a major problem in 30 countries of the world and in the next decade about two-thirds of the global population will face extreme water shortage. In real terms water crisis has become a major challenge in India.

Measures needed:

- **Water efficiency:**
 - Incentivize the wider adoption of sprinkler and drip irrigation by diverting resources otherwise used to subsidize power and surface irrigation.
 - Special emphasis should be laid on desilting of water bodies, including river, lakes, ponds and reservoirs.
- **Recycle of waste water:**
 - With the country generating 140 bcm of wastewater annually, a pilot scheme to irrigate 10 lakh ha with treated waste water by 2020 may initially be taken up.
 - Industries should be encouraged to meet a major share of their demand through recycled water. Besides, programmes for smart water meters and tradable permits for use of recycled water may be launched.
- **Water harvesting**
 - **Watershed development:**
 - The MoWR may develop specific strategies to tap water through watershed development (check dams) in rain-fed areas, expand micro irrigation coverage to 80 lakh ha, and link ground water development to aquifer mapping.
 - The timeline for watershed development projects needs to be shortened from seven to four years with special efforts by state governments. Funds available under MGNREGA and state plans may be used for watershed development projects.
 - **Rainwater harvesting:**
 - Model Building Bye Laws, 2016 circulated by Ministry of Urban Development includes the provision of rain water harvesting.
 - Barring the states/UTs of Manipur, Sikkim, Mizoram and Lakshadweep, all states have incorporated the provision in their respective Building Bye Laws.
- **Groundwater management:**
 - As on date, development of groundwater, i.e., utilization of groundwater resources vis-à-vis replenishable quantity, is 62 per cent. There is a need to develop recharging zones



at identified places to make groundwater resources sustainable using check dam, farm ponds, tanks and injection wells.

- Special focus should be placed on the quality of rural drinking water supply in arsenic and fluoride affected areas by tapping multiple sources through conjunctive use of surface water, ground water and rain water harvesting. All new, piped water supply schemes should have mandatory provisions on operation and maintenance involving local communities and stakeholders.

Way forward:

- To mitigate conflicts and achieve equitable distribution of water, an integrated river basin management approach needs to be adopted. The setting up of river basin organisations for major basins may be expedited.
- NITI Aayog has developed a concept note on Revitalization of Rivers, which may be implemented on a pilot basis before being expanded across major states.
- To ensure Aviral and Nirmal Dhara in the Ganga, the river should be managed as a single system.
- There is need for a scheme on medium term measures for flood management. This should include completion of incomplete works in the states of Assam, Bihar, Uttar Pradesh, Uttarakhand and West Bengal.
- A water regulatory framework should be established for water resources in all states.
- An action plan should be drawn up to improve water use efficiency (with 2017 as the base year) by 20 per cent in all sectors by 2022.
- The composite water management index developed by NITI Aayog may be used as a potent tool to assess and further improve the efficiency of water resources management.

What is Earth Hour? Why is Earth Hour the event held in late March? Elaborate on its significance. (250 words)

Reference: [News On Air](#)

Why this question:

Earth Hour 2020 was held on March 28, from 8:30 pm to 9:30 pm. Thus the question.

Key demand of the question:

Explain what Earth hour is and its significance in detail.

Directive:

Elaborate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Briefly define Earth hour.

Body:

Discuss the following aspects in your answer:

What is Earth Hour? Earth Hour is a global grassroots movement uniting people to take action on environmental issues and protect the planet.

Organized by: World Wide Fund for Nature (WWF).

Background: Earth Hour was started as a lights out event in Sydney, Australia in 2007.

When does Earth Hour take place? The annual Earth Hour lights out event is held worldwide toward the end of March to encourage individuals, households, communities and businesses to turn off their non-essential lights for one hour as a symbol for their commitment to the planet. Why is Earth Hour the event held in late March? The second-to-last and last weekend of March is around the time of the



Spring and Autumn equinoxes in the northern and southern hemispheres respectively, which allows for near coincidental sunset times in both hemispheres, thereby ensuring the greatest visual impact for a global 'lights out' event.

Earth Hour logo: Earlier it was 60 (60 symbolizes 60 minutes). But since 2011 it is 60+. Here + represents the commitment to go beyond the earth hour (i.e. switching off non – essential lights in day to day life).

Conclusion:

Conclude with importance.

Introduction:

Earth Hour is an annual event organized by the World Wildlife Fund that promotes conservation and sustainable energy, dating back to 2007. During this time, civilians are encouraged to switch off their lights for one hour to help reduce the effect of global warming and raise awareness for climate change and wildlife conservation. Every year, Earth Hour is observed on the last Saturday of March at 8:30 pm. And while previously it brought the public out onto the roads to mark the hour, this year the famous environmental initiative went digital as many countries are in lockdown.

Body:

Reasons for holding it in late march:

- It is held every year on the last Saturday of March.
- It encourages people from more than 180 countries to switch off the lights from 8.30 pm to 9.30 pm as per their local time.
- The idea is to refrain from the use of non-essential lighting to save energy in a symbolic call for environmental protection.
- Earth Hour has become a catalyst for positive environmental impact, driving major legislative changes by harnessing the power of the people and collective action.

Significance of Earth hour:

- Global warming and climate change have dominated the scientific discourse in the past more than one decade. With ever rising population of the world, the climate change has put the humankind at a great risk along with other species.
- Global warming, rising levels of pollution due to ever increasing industrialization, declining forest cover and rising sea levels are some of the dangers that drastically affect the workings of life on the earth.
- Though the largest polluters are big industries, the WWF tries to make the masses more and more aware about the impending dangers of adverse climate so that they could put pressure on the respective governments to frame environment-friendly policies and laws.
- With Earth Hour, the WWF aims to engage people across the globe to adopt more sustainable lifestyle. Turning off lights for an hour is just an annual reminder that if the world does not mend its ways, it will be heading to a dark age, literally.

Impacts of Earth hour:

- It helped create a 3.5 million hectare marine-protected area in Argentina.
- Ban all plastics in the Galapagos in 2014.
- Plant 17 million trees in Kazakhstan, light up homes with solar power in India and the Philippines.
- Push new legislation for the protection of seas and forests in Russia.



Conclusion:

It was famously started as a lights-off event in Sydney, Australia in 2007. Since then it has grown to engage more than 7000 cities and towns worldwide. Today, Earth Hour engages a massive mainstream community on a broad range of environmental issues. The one-hour event continues to remain the key driver of the now larger movement.

The recently witnessed low AQI across the country proves that pollution is mostly anthropomorphic (man-made) in nature. Comment.(250 words)

Reference: [The Hindu](#)

Why this question:

The nationwide lockdown in place has led to reduced air pollution in over 90 cities in India. Thus the question.

Key demand of the question:

Explain the way Air pollution across the cities has come down, discuss the need to have focused measures to replicate such a situation using technology that can ensure good AQI.

Directive:

Comment– here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

Briefly talk about the worrying air pollution conditions in the country in the past.

Body:

To start with, talk about the air pollution causes.

Discuss PM2.5- its impact, and other harmful gases that are polluting air.

The biggest impact of particulate air pollution on public health is understood to be from long-term exposure to PM2.5, which increases the age-specific mortality risk, particularly from cardiovascular causes. Exposure to high concentrations of PM to even short term episodes can also intensify lung and heart conditions. Children, the elderly and those with predisposed respiratory and cardiovascular diseases, are known to be more susceptible to the health impacts from air pollution.

Discuss the effect on Air pollution levels amidst the COVID-19 control.

Suggest what measures should be taken in future.

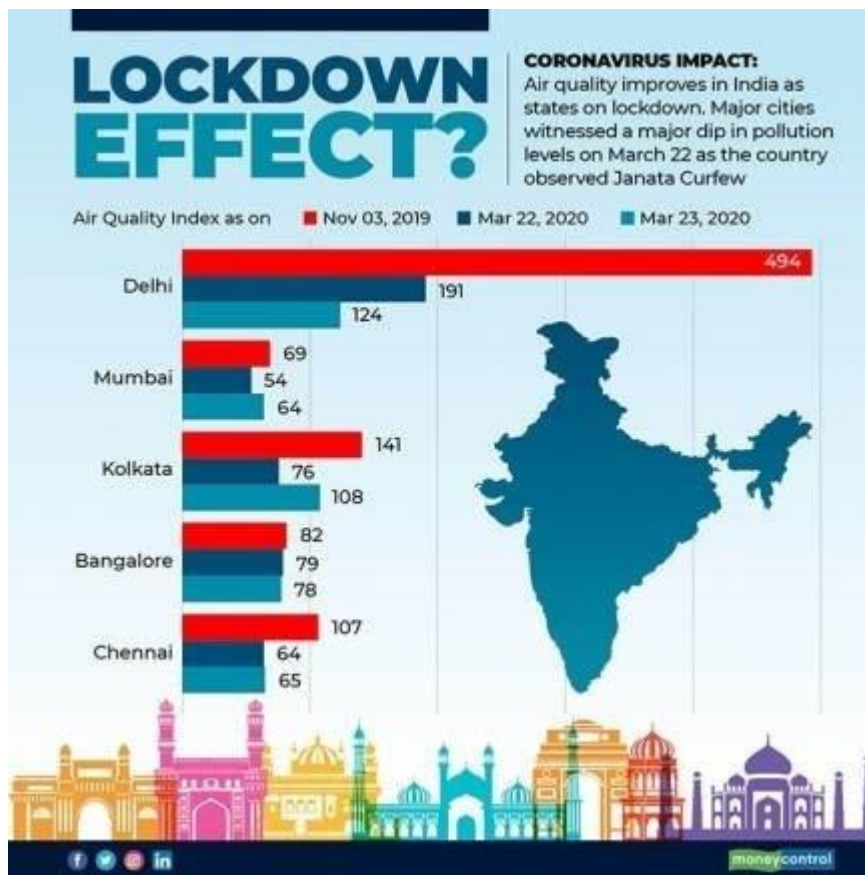
Conclusion:

The low AQI prove that pollution is mostly anthropomorphic (man-made) in nature. Though the lockdown is not the ideal way to bring down air pollution, it proves that it can be done. Pollution can be reduced by using technology and low-emission alternatives.

Introduction:

India is currently under the biggest lockdown with around 130 crore people asked to stay home in view of the COVID-19 outbreak. With a nationwide lockdown in place, over 90 cities, including Delhi, recorded minimal air pollution in the last few days. The government has urged people to avoid unnecessary travel, significantly reducing the traffic movement across the country. Lockdown has reduced vehicular traffic across the country, leading to a drop in PM2.5, NOx levels.

Body:



Air Quality Index across country:

- According to the Centre-run System of Air Quality and Weather Forecasting and Research (SAFAR), the measures against COVID-19 have led to a drop in PM2.5 (fine particulate pollutant) by 30% in Delhi and by 15% in Ahmedabad and Pune, respectively.
- The level of Nitrogen Oxide (NOx) pollution, which can increase the risk of respiratory conditions, has also reduced. NOx pollution is mainly caused due to a high motor vehicle traffic.
- In Pune, NOx pollution has reduced by 43%, in Mumbai, by 38% and in Ahmedabad, by 50%.
- According to SAFAR, in March, pollution is in the “moderate” category (Air Quality Index range: 100-200) while currently, it is in the “satisfactory” (AQI 50-100) or “good” (AQI 0-50) category.
- According to the data of the Central Pollution Control Board (CPCB), the air quality in the national capital is presently in the “good” category. In Kanpur, which has high pollution levels, it is in the “satisfactory” category.
- Moreover, 92 other cities with CPCB monitoring centres have recorded minimal air pollution, with the air quality in the range of “good” to “satisfactory”.
- As many as 39 cities have recorded “good” air quality and 51 cities have recorded “satisfactory” air quality in the last few days, the CPCB data showed.

Reasons for good air quality index:

- It is the lockdown impact.
- Local factors like shutting down of industries and construction and traffic have contributed in improving the air quality.



- The world's largest lockdown means all factories, markets, shops, and places of worship are now closed, most public transport suspended and construction work halted, as India asks its citizens to stay home and practice social distancing.
- Rain is also helping, but the curbs on local emissions are playing a significant role.
- Carbon monoxide mainly from cars had been reduced by nearly 50% compared with last year.
- Emissions of the planet-heating gas CO₂ have also fallen sharply.

Measures needed:

- Increase public awareness of air pollution. Educate and inform people about what they can do to reduce air pollution. Put out public health messages on the metro, buses, billboards, and radio to help change public behaviour.
- Raise and enforce emission standards. India is still on Bharat III and IV emission standards for our vehicles and fuels. This is 10-15 years behind the West, where vehicles spew one-tenth of our emissions or less.
- Improve public transportation and traffic management. Expand the fleet of CNG buses. Implement BRT the right way. Build, repair, and reclaim the sidewalks for pedestrians – not for parking and vending – so people can walk more often, including to nearby bus stops and metro stations.
- Discourage vehicle use: Driving is not a right but a privilege; it has a social cost. Impose – as many countries do – an annual vehicle use fee. Penalize ownership of multiple cars in a household.
- Penalize big and non-compliant polluters. Like Beijing, ban the sale and registration of all new private diesel vehicles in Delhi. Provide 24x7 power across the NCR to minimize genset use; ban diesel gensets and promote CNG gensets. Spot-check fuel pumps for adulteration. Move coal-fired brick/pottery kilns out of the NCR.
- Reduce road and construction dust. The problem of dust plagues the entire Indo-Gangetic plain. It can be mitigated by changing how our urban surface infrastructure is built.
- Reduce domestic sources of pollution, improve waste management. According to the 2011 census, over ten percent of Delhi's households still use biomass for cooking. Remove the address proof requirement for LPG. Make LPG more affordable.

Conclusion:

Environmentalists believe that the reduced pollution levels should act as a wake-up call for the government. This has been a fantastic wake-up call and I think we had a reality check and we need to figure out a new normal. This is an opportunity, a chance to find a new sustainable life.

Disaster and disaster management.

Explain what constitutes a notified disaster. Discuss how the State Disaster Relief Fund is used by the government to handle such situations.(250 words)

Reference: [Indian Express](#)

Why this question:

The article explains in what way declaring COVID-19 a 'notified disaster' help tackle the situation.

Key demand of the question:

The answer must bring out the significance of what a notified disaster is and in what way the SDRF is used in such instances.

Directive:



Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly define what a notified disaster is.

Body:

Discuss the following dimensions –

Who notifies a disaster? What defines a notified disaster?

A “notified disaster”, would enable it to provide assistance and spend more funds to fight the pandemic.

The MHA has “notified” the coronavirus incidence as a disaster. Natural disasters like floods are also similarly notified, but this is the first time for a pandemic, and officials could not recall when the provision was last invoked at national level for all states.

Discuss how the State Disaster Relief Fund is used by the government to handle such situations.

Conclusion:

Conclude with significance of such a move amidst such pandemics.

Introduction:

According to the **Disaster Management Act**, a disaster is defined as the following, “a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or man-made causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, or degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area”.

The Ministry of Home Affairs decided to treat COVID-19 as a **notified disaster** for the purpose of providing assistance under the State Disaster Response Fund (SDRF).

Body:

State Disaster Response fund (SDRF):

- The SDRF is constituted under the **Disaster Management Act, 2005** and is the **primary fund available with state governments for responses to notified disasters**.
- The Central government contributes 75 per cent towards the SDRF allocation for general category states and UTs, and over 90 per cent for special category states/UTs, which includes northeastern states, Sikkim, Himachal Pradesh and Uttarakhand).
- For SDRF, the Centre releases funds in two equal installments as per the **recommendation of the Finance Commission**.
- On the other hand, the **National Disaster Response Fund**, which is also constituted under the Disaster Management Act, 2005 supplements the SDRF of a state, in case of a disaster of severe nature, provided adequate funds are not available in the SDRF.
- The disasters covered under the SDRF include cyclones, droughts, tsunamis, hailstorms, landslides, avalanches and pest attacks among others.

Current Utilization of SDRF funds during such situations:

- In 2018, in view of the devastation caused by the Kerala floods, political leaders in Kerala demanded that the floods be declared a “national calamity”.
- As of now, there is no executive or legal provision to declare a national calamity.



- According to the MHA's notification, the items and norms of assistance under SDRF include a compensation of Rs 4 lakh per deceased, including those involved in relief work and for COVID-19 positive people requiring hospitalisation, the costs will be in accordance to rates fixed by the state governments.
- The Centre said that cost of hospitalization for managing COVID-19 patients would be at the rates fixed by the state governments.
- The state government can use SDRF fund for providing temporary accommodation, food, clothing and medical care for people affected and sheltered in quarantine camps, other than home quarantine, or for cluster containment operations.
- The cost of consumables for sample collection would be taken from the funds which can be used to support for checking, screening and contact tracing.
- Further, funds can also be withdrawn for setting up additional testing laboratories within the government set up.
- Further SDRF money can also be used for procuring thermal scanners and ventilation and other necessary equipment.

Conclusion:

The move would enable the states to spend a larger chunk of funds from the State Disaster Response Fund to fight the pandemic.

Do you agree that scientific advances are reducing technical barriers that earlier limited the potential of biological weapons? Discuss with suitable examples.(250 words)

Reference: [News On Air](#)

Why this question:

March 26 marked the 45th anniversary of the entry into force of the Biological Weapons Convention. The anniversary comes as the world is grappling with the Coronavirus pandemic. Thus the question.

Key demand of the question:

Explain the interrelationship between the growing technological advancement with that on the potential promotion of biological weapons.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly discuss what constitute Biological weapons.

Body:

Talk about the scientific advancements the world countries are making.

Then move onto discuss – The Biological Weapons Convention (BWC), which is a legally binding treaty that outlaws biological arms.

Discuss the nuances of biological weapons; the concerns associated and what needs to be done.

Conclusion:

Conclude that all countries should reaffirm their unequivocal rejection of the use of disease as a weapon with due international cooperation.

Introduction:

Biological weapon, also called **germ weapon**, any of a number of disease-producing agents—such as bacteria, viruses, rickettsiae, fungi, toxins, or other biological agents—that may be utilized as weapons against humans, animals, or plants. Biological weapons, like chemical weapons, radiological weapons, and nuclear weapons, are commonly referred to as weapons of mass destruction,



although the term is not truly appropriate in the case of biological armaments. Lethal biological weapons may be capable of causing mass deaths, but they are incapable of mass destruction of infrastructure, buildings, or equipment.

Body:

The UN chief, in his message on the 45th anniversary of the Biological Weapons Convention's entry into force, said that all countries should reaffirm their unequivocal rejection of the use of disease as a weapon.

The Biological Weapons Convention (BWC)

- It is the first multilateral disarmament treaty banning the development, production and stockpiling of an entire category of weapons of mass destruction, was opened for signature on 10 April 1972.
- The BWC entered into force on 26 March 1975.
- The BWC bans:
 - The development, stockpiling, acquisition, retention, and production of:
 - Biological agents and toxins “of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes;”
 - Weapons, equipment, and delivery vehicles “designed to use such agents or toxins for hostile purposes or in armed conflict.”
- The transfer of or assistance with acquiring the agents, toxins, weapons, equipment, and delivery vehicles described above.

Scientific advances have led to Bioterrorism. It is a form of terrorism where there is the intentional release of biological agents (bacteria, viruses, or other germs). This is also referred to as germ warfare.

Impact of Bioterrorism:

- In effect, biological warfare is using non-human life to disrupt — or end — human life. Because living organisms can be unpredictable and incredibly resilient, biological weapons are difficult to control, potentially devastating on a global scale, and prohibited globally under numerous treaties.
- The threat of bioterrorism is increasing as a result of the rise of technical capabilities, the rapid expansion of the global biotechnology industry, and the growth of loosely sophisticated networks of transnational terrorist groups that have expressed interest in bioterrorism.

Challenges posed by bioweapons:

- The technology associated with the manufacture of biological weapons is relatively inexpensive, and because it is similar to that used in vaccine production facilities, it is easy to obtain.
- The microbial agents needed for most biological weapons are widely available.
- It is difficult to gauge the extent of biological weapons development in other nations since production facilities require little space and are not easy to identify.
- For instance, the acquisition and dissemination of even the most highly restricted organism, Variola major, is not an implausible scenario.



- There is growing concern that biological weapon designs or materials from this program might find their way to other nations or terrorist groups.
- Finally, the series of revelations following the Gulf War regarding the true capacity and scope of Iraq's biological weapons program has been alarming.
- In addition to creating many tons of pathogens and toxins, including B. anthracis and C. botulinum toxin, Iraq also admitted that it had loaded bombs and missiles with biological agents

Preparation to Respond to Biological Weapon Use:

- Existing prevention strategies are insufficient to guarantee that biological weapons will not be used. Furthermore, it is clear that biological weapons are proliferating.
- **Awareness and education:**
 - ID professionals are called on every day to diagnose and treat patients with fever, pneumonia, rash, and flulike symptoms; therefore, it is the ID professional who would be among the clinicians most likely to recognize the diseases caused by biological weapons.
 - Professional educational and training curricula should be enhanced so that ID professionals are better capable of recognizing the diseases that would follow use of a biological weapon such as anthrax, plague, or smallpox.
- **Laboratory diagnosis:**
 - Should the recognition of an unusual disease or pattern of illnesses prompt consideration of possible biological weapon use, members of the ID community will be called on to advise upon the most rapid procedures for diagnostic confirmation of disease.
 - In anticipation of this, ID experts should become familiar with the processes by which either the hospital laboratory or the local or state health department, in consultation with the Centers for Disease Control and Prevention (CDC) as necessary, will perform diagnostic studies to implicate or exclude biological weapons use.
- **Systems for distributing therapeutics:**
 - Should a biological weapon use be confirmed, treatment and intervention strategies for the ill and for the exposed but not yet ill will be critical. Depending on the disease, antibiotics, and/or vaccines or other therapies, as well as quarantine, could be lifesaving.
- **Scientific research:**
 - The ID community already does research that seeks new strategies for diagnosis, prevention, or treatment for infectious disease.
 - Commensurate with this, the ID community might elect to encourage and reward basic science research efforts that seek to produce novel diagnostic technologies, preventive, or therapeutic interventions for the diseases caused by biological weapons.



Challenges to internal security through communication networks, role of media and social networking sites in internal security challenges, basics of cyber security; money-laundering and its prevention.

Are Internet shutdowns healthy for India? Critically analyse and also comment on the recent trends associated and the laws governing it. (250 words)

Reference: [Indian Express](#)

Why this question:

Data on internet shutdowns in India which is available in public domain and compiled by Software Freedom Law Centre (SFLC). Thus the question.

Key demand of the question:

The answer must discuss about the study and its key findings; trends in internet shutdowns in India and comment upon the laws governing it.

Directive:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgment.

Structure of the answer:

Introduction:

Briefly start with the key findings of the report. The number of preventive internet shutdowns enforced by the central and the state governments in India saw a major spike between 2017 and 2019, and as many as 95 of these lasted for more than 24 hours.

Body:

First discuss the recent internet shutdowns played out in many parts of the country like – Kashmir, north-east etc. Then explain that in today's world, there are high social and economic costs for repeated and prolonged suspension of Internet connectivity. Explain the difference between Preventive and Reactive internet shutdown. Discuss rules regarding internet shutdown; Indian Telegraph Act of 1885. Highlight the Misuse of Section 144 of CrPC.

Conclusion:

Conclude by suggesting way forward.

Introduction:

The Software Freedom Law Center (SFLC), the global tracker for Internet shutdowns, was inundated with messages of shutdowns across the country — a frequently recurring phenomenon in India over the past several years. Recently as protests over a controversial citizenship law rage across India, authorities resorted to shutting down the internet in cities where demonstrators flooded the streets. **A country that is now seen as the internet shutdown capital of the world.** There were at least 147 instances over these three years for which there is no data on the duration of the shutdowns as there is lack of any form of communication on these blockades.

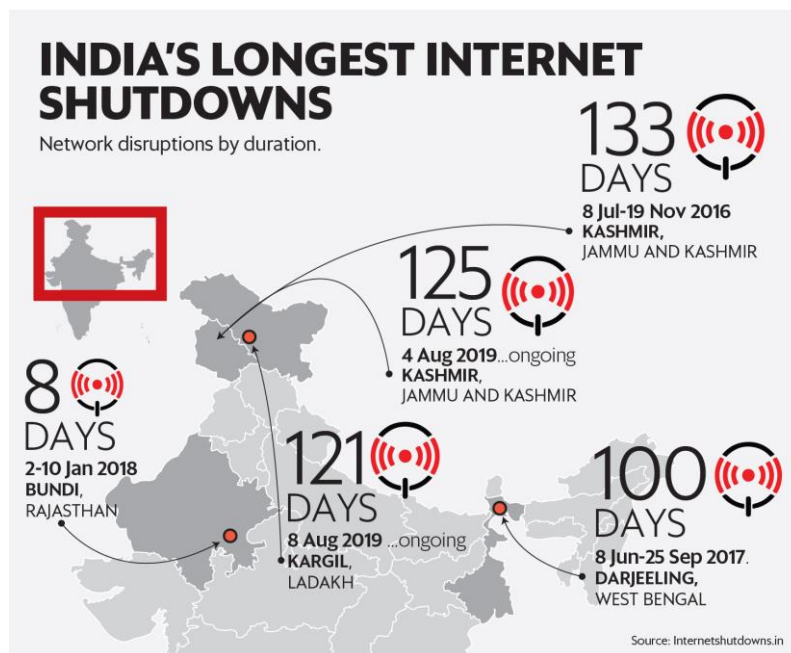
Body:

Recent internet shutdowns in India:

- **The Union Territory of Jammu and Kashmir, where the internet had remained suspended until March 4 for 213 days,** has seen since 2012 at least 60 instances of connectivity being snapped for more than 24 hours without any official order.



- **133 days:** An internet shutdown in Indian-administered Kashmir which lasted from 8 July to 19 November in 2016
- **99 days:** Authorities shut off the internet in India's West Bengal state from 18 June to 25 September in 2017
- Most internet shutdowns in India are ordered under **article 144 of the Indian Penal Code**, which empowers local authorities to issue prohibitory orders to deal with situations of potential unrest. (Software Freedom Law Center)
- The current sweeping shutdowns come after access to the Internet was cut off as a preventive measure in several states last month ahead of the Supreme Court's Ayodhya verdict, when there were apprehensions of tension and violence
- The Internet was suspended around the death anniversary of the slain Hizbul Mujahideen commander Burhan Wani, and on Independence Day 2017, Republic Day 2016, and Eid 2015.



Laws that govern internet shutdown:

- The Information Technology Act, 2000, the Criminal Procedure Code (CrPC), 1973 and the Telegraph Act, 1885 are the three laws that deal with suspension of Internet services.
- But before 2017, Internet suspension orders were issued under **section 144 of the CrPC**.
- A colonial era law, Section 144 gives a magistrate the powers to enforce a general shutdown of the area, if he or she believes that there could be violence in the area, arising from a certain tension between two or more groups of people.
- In 2017, the central government notified the **Temporary Suspension of Telecom Services (Public Emergency or Public Service) Rules under the Telegraph Act** to govern suspension of Internet. These Rules derive their powers from Section 5(2) of the Indian Telegraph Act, which talks about interception of messages in the "interests of the sovereignty and integrity of India".
- Despite the 2017 rules, the government has often used the broad powers under Section 144.
- Supreme Court recently delivered the verdict on a clutch of petitions challenging the Union government's decision to impose restrictions on the erstwhile state of Jammu and Kashmir after the August 5 revocation of provisions of Article 370.



- The Supreme Court said that all restrictive orders under Section 144 of CrPC and suspension of internet services in Jammu and Kashmir have to be reviewed by the administration within a week.

Issues and concerns involved:

- Shutdown is a violation of fundamental rights of Freedom of speech and expression.
- Internet shutdowns can erode democratic institutions and values. For example, if citizens are using the internet to mobilize themselves, then shutting down the internet is not different from suppressing dissent.
- Does a democratic government have the right to shut down the internet? Is a basic question regarding internet shutdown. After the Gujarat government suspended internet services for almost a week during the Patidar protest in 2015, the matter was taken to the courts.
- Internet shutdowns are not particularly effective—people always find other ways to communicate, and studies have shown that such censorship in times of political unrest actually leads to more violent uprisings as the information void fuels uncertainty and causes panic.
- The Internet is pretty much a basic human right, even if not legally defined as such, for most parts of the world — without access to the virtual world, a very large number of vital human activities simply stop.
- In countries that have “medium” Internet penetration — 49% to 79% of the population — a shutdown could dent daily economic activity by \$6.6 million per 10 million people, according to an analysis by Deloitte, quoted in The New York Times article.
- Between July 2015 to June 2016, Internet shutdowns caused global losses of more than \$2.4 billion, according to an analysis by The Brookings Institution quoted in the same article.
- Over the past five years, some 16,000 hours of Internet shutdowns cost the economy a little over \$3 billion, according to estimates in a report by the Indian Council for Research on International Economic Relations (ICRIER).
- Cutting off communication in itself is an enormous public safety risk. Citizens are left without access to information about emergency services like the volunteer-built solutions like chennairains.org.
- Because internet shutdowns affect every section of society - especially those who need it the most. And these restrictions, targeting the 'common people', are becoming increasingly 'common'.

Way forward:

- Perhaps the solution can be found in renegotiating our law enforcement approaches in keeping with the changing times and technologies.
- Police and government agencies could increase their presence online so that they can actively fight back against rumour-mongering.
- Empowering local law enforcement so they can tackle tensions without shutting the Internet down.
- The solution to internet misuse is to build stronger laws for data privacy and protection. Stopping access to internet services altogether is definitely not the solution.
- Social media can be the solution, not just the problem: Particularly in the Kaveri River water dispute, the Bangalore police used texts, Twitter, and Facebook to send out information on emergency contacts to reassure people.

On a resolution on **“The promotion, protection and enjoyment of human rights on the Internet”**, the UN Human Rights Council, guided by the Charter of the UN, said it was **“deeply**



concerned by all human rights violations and abuses committed against persons for exercising their human rights and fundamental freedoms on the Internet, and by the impunity for these violations and abuses”, and “also by measures aiming to or that intentionally prevent or disrupt access to or dissemination of information online, in violation of international human rights law”.

Conclusion:

Shutdowns, which are a negative expression of the idea of digital sovereignty, are not just for undemocratic societies any more. An internet shutdown compromises our democratic freedoms and should only be allowed in the rarest cases, rather than as a first response. Also an independent body could be a substitute for legislation which impose shutdown arbitrarily and that it also be empowered to review the necessity of shutdowns in the first place.

Curbing hate speech and fake news has emerged as a critical challenge for governments globally. But this is not just a technological issue; it is also a societal problem. Discuss. (250 words)

Reference : [Hindustan Times](#)

Why this question:

Online forums are often looked at in a vacuum, but they are merely a reflection of society. In India, polarising content and hateful material on the Internet has proliferated in the recent past. Opinions that an individual would earlier hold back for fear of societal backlash have now found their safe spaces online. The Internet harbours a variety of extreme statements.

Key demand of the question:

One has to discuss the various reasons for degradation of the lake ecosystems in India and provide the measures for safeguarding the same.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Explain the concept of fake news and hate speeches.

Body:

Give an account of how the fake news and hate speeches have manifested into various societal issues across the globe.

In 2019, a terrorist opened fire in two mosques that killed at least 49 worshippers and wounded dozens of others in Christchurch, New Zealand. The attack was live-streamed on Facebook by the perpetrator.

Discuss the challenges posed by hate speeches and fake news using social media?

Polarization of the society

Increased communal violence

Targeting of the minorities

Ghettoization etc.

Talk about how the Governments across the globe have started taking measures and implications of such stringent measures. Also, mention how Indian Cyber laws are toothless in tackling such cyber hate crimes.

Discuss the feasible measures to overcome these menaces.

Conclusion:

Conclude with a way forward.

Introduction



Fake news is a deliberate lie or a half-truth circulated with the intention to mislead or cause harm to a section of people. It is a type of yellow journalism that consists of deliberate misinformation or hoaxes spread via the traditional print, broadcasting news media, or via Internet-based social media.

Hate speech is an incitement to hatred against a particular group of persons marginalized by their religious belief, sexual orientation, gender, and so on. The Law Commission, in its **267th report** on hate speech, said such utterances have the potential to provoke individuals and society to commit acts of terrorism, genocide, and ethnic cleansing.

Both hate speech and fake news have overlapping areas and are a major threat to peaceful order of the society. Social Media aided by technological advancements has become a major vector of the two phenomenon.

Body

In the age of the internet (WhatsApp, Facebook, Twitter,) it is a serious problem as rumors, morphed images, click-baits, motivated stories, unverified information, planted stories for various interests spread easily among 35 crore internet users in India.

Why Hate Speech and Fake News are critical challenges for governments?

- **Internal Security:** The Muzaffarnagar riots of 2013 was triggered by a fake video that incited communal passions. In the West, hate speech combined with fake news on minorities has induced an anti-immigration sentiment (eg : France, Italy, Greece)
- **User homophily and Bubble phenomenon:** Users with matching political views exchange one-sided information and opinions that suit their own convictions, reinforcing them even further, even if those were based on false information. Eg : Twitter prompts users to follow those who express similar views or posts.
- **Igniting extremist sentiments:** Fake news' perpetuates, previously locally found, extremist ideas and groups together dangerously like minded people e.g. – Neo-Nazis in Germany, Separatists in Kashmir.
- **Mob lynching:** Rumors of child lifting in Jharkhand led to mob lynching on innocent victims.
- **Violence:** An atmosphere of violence and chaos is created directly or indirectly. The Christchurch Terror attack on a mosque by an extremist was a result of Islamophobia (a direct result of hate speech).
- **Misinformation and disinformation** due to hate speech and fake news have led to riots as seen in the Delhi Riots case 2020.

Hate Speech and Fake News: A Societal Problem

- **Targeted propaganda:** Democracy has been reduced to an advertisement campaign. The business conglomerates owned or tied up with political parties influence the views of the people by targeting their audience. Algorithmic filtering have created the cycle of enforcing and reinforcing belief systems and ensuring that we don't open our minds to diverse opinions.
- **Election Manipulation:** The issue of fake news has turned out to be a global menace. It has its role in deciding result of elections (Example: USA) to polarization of societies to communal riots to even crumbling the economies. Tolerance and harmony are victims of the new social media age.
- **Non-Utilitarian:** The anonymity that the internet lends was supposed to aid freedom of speech and, thereby, help democracy thrive. But, political elites have managed to design a grim nexus



between anonymity, capital, and technology to influence public opinion, promote political agendas, and disseminate fake and misleading news and information.

- **Tools for disharmony: Fake news** can divide people based on many fault lines, especially in a diverse country like India. It increases Ghettoization.
- **Deep Fake**, a new entrant to the arena is even vicious than spreading misinformation. It is used to combine and superimpose existing images and videos onto source images or videos using a machine learning technique known as generative adversarial network.

Measures to overcome the menace

- The world's biggest social media companies, including Facebook, Google, Twitter and ByteDance, are exploring an **industry-wide alliance** to curb fake news on their platforms in India.
 - The proposed alliance — to be named the **Information Trust Alliance (ITA)** — will be a grouping of digital platforms and publishers, fact checkers, civil society and academia that will aim to control the spread of harmful content, including fake news and hate speech.
 - **Facebook** has announced that it currently has over 500 full-time employees and at least 3,500 external contractors who focus on election work, on top of the 30,000 people across the company focused on safety and security issues.
- Coordinated attempts to amplify and spread misleading and false information sometimes seem to emanate from major political parties and activists who support them. **Election Commission of India** must tie up with tech companies to identify the creator of such news.
- **Educating the end-users** to be more discerning consumers of news by informing them of verification tools so that they can ascertain the accuracy of a news item before sharing it.
- **Press Council of India**, a regulatory body, can warn, admonish or censure the newspaper, the news agency, the editor or the journalist or disapprove the conduct of the editor or the journalist if it finds that a newspaper or a news agency has violated journalistic ethics.
- A better and more effective approach to limit the influence of hoaxes on WhatsApp and other platforms is to increase **media literacy**.
- The government should bring out a policy framework on the possible harm due to the internet messaging platforms to engage at a deeper level.
- Government of India could partner with local news groups to further educate citizens on how to identify real news from fake news.
- Imposing hefty fines, like in Germany the Social media companies face fines of up to €50m if they persistently fail to remove illegal content from their sites.

Conclusion

Government should **have a mechanism for immediately issuing of notice** against sites/people/agencies involved in spreading fake news. Secondly, Social media websites should be made **accountable** of such activities so that it becomes their responsibility to have better control over the spread of fake news. Finally, ordinary consumers of news can play a big role by, first, waking up to the reality that all they read on WhatsApp and Twitter is not the gospel truth, and then, by refusing to pass on what they cannot independently verify with other sources.



What is a cyber-threat? Discuss numerous challenges associated with cyber threats along with steps taken by the government to prevent it. (250 words)

Why this question:

The question is amidst the rising incidences of Cybercrime that the world community is facing.

Key demand of the question:

The question is straightforward and must discuss the challenges associated with cyber threats along with steps taken by the government to prevent it.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain cyber threat with its various forms.

Body:

A cyber or cybersecurity threat is a malicious act that seeks to damage data, steal data, or disrupt digital life in general. It also refers to the possibility of a successful cyber-attack that aims to gain unauthorized access, damage, disrupt, or steal an information technology asset, computer network, intellectual property or any other form of sensitive data.

Discuss various challenges associated with cyber threats in the country.

Analyze the various steps taken by the government and suggest way forward.

Conclusion:

Conclude by suggesting the way ahead.

Introduction:

A cyber or cybersecurity threat is a malicious act that seeks to damage data, steal data, or disrupt digital life in general. Cyber threats include computer viruses, data breaches, Denial of Service (DoS) attacks and other attack vectors. Cyber threats also refer to the possibility of a successful cyber-attack that aims to gain unauthorized access, damage, disrupt, or steal an information technology asset, computer network, intellectual property or any other form of sensitive data. Cyber threats can come from within an organization by trusted users or from remote locations by unknown parties.

Body:

India's preparedness and challenges faced:

- The attacks can be more tangible causing damage to physical or digital infrastructure.
 - This includes a country's water system or electric grid.
 - Cyber tentacles can spread to political parties, universities and private businesses and Citizens.
 - Potentially worrisome cyber incidents include interference in political affairs, leaks and espionage and the compromising of critical national infrastructure.
- A 2017 study conducted by Symantec found that India ranked fourth in online security breaches, accounting for over 5 per cent of global threat detections. In the beginning of 2017, the newly launched Bharat Interface for Money application (BHIM app) reportedly faced spam threats.
- The real danger to India lies in targeted cyber-attacks coming from adversarial nation states.



- Countries like China can bring immense assets to bear in carrying out sophisticated cyber-attacks. The success of Stuxnet, which damaged the Iranian centrifuge facility at Natanz is an example.
- Cyber warfare is characterized by an absence of clarity.
 - India can never be certain about the capability of the other side and also the chances of success if we launch a cyber-counterstrike.
- There is a push towards greater digital dependence with demonetization a cashless system is being propagated. Aadhaar and the wider platforms such Digital India and Smart Cities will push things further along. India is the world's second largest digital nation with more than 350 million Indians are online and millions more will be getting connected in the years to come.
- India is not even a signatory to some of the basic international frameworks on Cybersecurity like the Convention of Cybercrime of the Council of Europe which not only European nations but Japan, US, South Africa have become signatories to, except India.
- Indian laws are not in tandem with the ever-changing global cyberspace.
 - The laws are old and hence need to be more dynamic in nature to deal with issues like cyber-espionage, data theft and so on.
 - The Information Technology Act, 2000 (IT Act 2000) is the sole law that deals with cyberspace in India and was passed way back in 2000.
 - Also, the Cyber Law of India has been subject to amendments on various occasions but hasn't served the changing dynamics and the growing threats and manifestations of cyberwar.

Measures needed:

- **A Defence Cyber Agency** could be the first step the government plans to for critical infrastructure and military networks that are increasingly becoming dependent on the Internet, thus increasing vulnerabilities.
- The Defence Cyber Agency will work in coordination with the National Cyber Security Advisor. It will have more than 1,000 experts who will be distributed into a number of formations of the Army, Navy and IAF. According to reports, the new Defence Cyber Agency will have both offensive and defensive capacity.
- Equally important is **cyber propaganda**. During the Doklam conflict, China tried its best to unleash cyber propaganda on India and indulged in complex psy-ops
- **Critical cyber infrastructure** needs to be defended and the establishment of **the National Critical Information Infrastructure Protection Centre(NCIIPC)** is a good step in this direction
- Individual ministries and private companies must also put procedures in place to honestly report breaches. It is only then that the NCIIPC can provide the requisite tools to secure these networks. This partnership must be transparent and not mired in the usual secrecy of intelligence organizations.
- The **upgrading of the Defence Cyber Agency to a Cyber Command** must be implemented at the soonest.
- A robust ecosystem must be built to secure India from acts of state and non-state actors, including protocol for grievance redressal in international forums.
- Better capabilities must be built to detect and deflect attacks.



- The **computer emergency response team (CERT)** must be strengthened and aligned with military and foreign affairs operations.
- Building a joint task force between the government and key technology players will be crucial.
- The government should push for the creation of a **global charter of digital human rights**.
- A **national gold standard** should be created, which ensures that Indian hardware and software companies adhere to the highest safety protocols
- Impart cybercrime investigation training and technological know-how to the various law enforcement agencies.
- **Cyber awareness** must be spread and there should be multi-stakeholder approach- technological inputs, legal inputs, strengthening law enforcements, systems and then dealing with transborder crime involves lot of international cooperation.

Conclusion:

Most of the Indian banking industry and financial institutions have embraced IT to its full optimization. Reports suggest that cyber-attacks are understandably directed toward economic and financial institutions. With innovative, technology led programmes such as AADHAAR, MyGov, GeM, Digital Locker the new India is the land of technological prowess and transformation. Government and the private sector jointly have to give cyber security some priority in their security and risk management plan.

Discuss the role of social media in influencing political opinions and social attitudes in the country.(250 words)

Reference: [Research Gate](#)

Why this question:

The question is straightforward and aims to analyse the role of social media in influencing political opinions and social attitudes in the country.

Key demand of the question:

One has to explain the role played by social media in affecting the political opinions and social attitudes in the country.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

First explain what constitutes social media.

Body:

Social Media [has rapidly grown in importance](#) as a forum for political activism in its different forms. Social media platforms, such as Twitter, Facebook and YouTube provide new ways to stimulate citizen engagement in political life, where elections and electoral campaigns have a central role. Present the positives and negatives such as Social media has reshaped [structures and methods](#) of contemporary political communication by influencing the [way politicians interact with citizens and each other](#). However, the role of this phenomenon in increasing political engagement and electoral participation is neither clear nor simple.

Discuss its overall impact.

Conclusion:

Conclude with solutions.

Introduction:



Social media plays an integral role in our lives today and has a huge bearing on society and individuals. Social media has revolutionized the way people communicate and socialize on the web. There is a positive effect on business, politics, socialization as well as some negative effects such as cyberbullying, privacy, and fake news. After legislature, executive, Judiciary, Media and Common Man, the sixth pillar of the democracy is touted to be 'Social Media'. All these pillars have the capacity to change the status-quo and undone wrongdoing.

Body:

Role of social media in influencing political opinions and social attitudes

Given the tremendous growth of social media, in particular Twitter and Facebook, social media are increasingly used in political context recently—both by citizens and political institutions.

News Around the Clock: One of the ways that social media has transformed politics is the sheer speed at which news, poll results and rumors are shared. Whereas in the pre-internet days, people had to wait for the next newspaper or TV news show to get the latest information, online news is a 24/7 phenomenon. While you can access news on many websites at any hour, most people spend more time on sites such as Facebook and Twitter than they do on serious news or political websites.

The Impact of Polls: Political polls are an important part of every campaign. They are often confusing, because you can often find multiple polls with contradictory results posted on the very same day. As with other types of political news, the internet has greatly increased the number of poll results we see each day. Social media has accelerated this even more. Not only do social media sites report the results of polls, you can actually participate in Facebook polls. E.g.: The recent US presidential campaign in 2016 has shown that social media technologies have become increasingly important for political communication and persuasion

Direct Interaction with Politicians: One of the positive effects that social media has on politics is the opportunity for voters to interact more easily with candidates and elected officials. Traditionally, if you wanted to meet a politician or candidate, you'd have to attend a live event. Not everyone is able to do this. With modern technology, it's now possible to attend virtual events where you can participate in live streaming events and interact with politicians and candidates.

Demographics and Targeting: Targeting is used throughout the advertising industry to make sure that ads and messages reach the right audience. Politicians do this as well. In the age of social media, politicians and people running for office are able to target their campaigns. If a candidate wants to address the concerns of women, college students, retired people, Latinos or any other group of voters, they can now tailor their messages. Just as advertisers on Facebook are able to use analytics and targeted advertising, so can candidates and politicians. Thus, if you notice that political messages seem to be talking to you personally, this is no accident.

Rumors, Fake News and Conspiracies: Political campaigns are now influenced by every story, whether true or not, that gets spread around social media. It's getting more and more difficult to separate actual news from fake news online. Social media makes this distinction especially confusing. The constant stream of memes, links and rumors about political leaders and candidates is a mixture of truth, lies, satire and speculation.

The Power of Confirmation Bias: One of the hidden forces that operates on social media is confirmation bias. This is especially powerful when it comes to controversial topics, including politics. If you're like most people, the majority of your friends and followers on social media



probably share your outlook. This means that the vast majority of tweets, Facebook posts, pins or other content you read on these sites tend to express the same point of view, one that you already hold.

Social Media and the Future of Politics: Because social media is relatively new, we're just starting to see its impact on society. There are sure to be many political changes that come about due to social media. There are now proposals for internet voting, which could lead to more people participating in elections. This could make social media even more influential, as people could literally vote moments after reading the latest comments or links they found on Facebook or Twitter.

Pros:

- The hashtag activism empowers people to speak up injustice without fear. Some recent examples are #not in my name, #MeToo.
- Social media provide solidarity and sense of companionship to those unable to reach government or raise their voice.
- It has long been observed that when people discuss the news, they're more likely to be involved in their community, whether by volunteering or reaching out to elected officials. There is growing evidence that this is also true for social media — especially among young people.
- Social media platforms are driving people not just to learn about issues but to take action. For e.g.: During the 2016 US election alone, the voter registration efforts on Facebook led more than 2 million people to register to vote.

Cons:

- Online abuse, hate speech and harassment is perpetuating with anonymity. Policing the content at a global scale is an open research problem since it is hard for machines to understand the cultural nuances of political intimidation.
- The unbridled exercise of power on online platform is out of government regulation.
- It has become a medium to influence youth by the terror outfits
- The spreading of fake news which hampers peace and tranquility of a nation is rapid and complete.
- One of the most common criticisms of social media is that it creates echo chambers where people only see viewpoints they agree with — further driving us apart.
- While foreign meddling, misinformation, echo chambers and hate speech get the headlines, it is also worrisome that how social media can distort policymakers' perception of public opinion.
- The 2016 US presidential election brought to the fore the risks of foreign meddling, "fake news" and political polarization. The effect of social media on politics has never been so crucial to examine.
- If politicians mistake the views of a few with the views of many, that can make for bad public policy. Vulnerable populations could end up ignored, and fringe groups could appear mainstream.

Conclusion:

The use of social media for political activities influences peoples' political efficacy, political knowledge, and political participation. Social media must be submitted to the same rules that are established for other media such as clear accountability and transparency. This would probably require new international laws. Moreover, the big companies should continue looking for ways to prevent the abuse of their media.



Media is labeled as the fourth pillar of democracy. In this context, discuss the significance of media ethics in contemporary times. (250 words)

Reference: [The Hindu](#)

Why this question:

The question is about the significance of media ethics in contemporary times.

Key demand of the question:

One must explain in what way Media is the fourth pillar of Democracy and discuss the significance of media ethics in contemporary times.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Highlight the growing importance of media in a democracy. Explain that Legislature, Executive, Judiciary and Media are pillars of a democracy. Corruption in any one of these pillars can lead to unstable, flawed or dummy democracy. Media has gained importance in the 21st century due to technological revolution, Human Development, and increasing interconnectedness of the world.

Body:

Highlight some ethical issues currently faced by the media towards jeopardizing democracy. Explain that such processes naturally place media's role in democracy under scrutiny of ethical principles and standards in its functioning due to following reasons – Manipulation of Information, Furthering vested interest, conflict with law, Issues of transparency, accountability and independence etc.

Present recent examples to justify your answer better.

Conclusion:

Conclude by highlighting the need of media ethics and suggest some measures for its implementation.

Introduction:

Media acts as a watchdog of public interest in a democracy. It plays an important role in a democracy and serves as an agency of the people to inform them of the events of national and international significance. Media is considered as "Fourth Pillar" in democratic countries along with Legislature, Executive, and Judiciary. Its importance in influencing readers can be gauged by the role it played during the freedom struggle, politically educating millions of Indians who joined the leaders in their fight against the British imperialism.

Body:

Importance of Media in today's India:

- Journalism is a profession that serves. By virtue, thereof it enjoys the privilege to 'question' others.
- The fundamental objective of journalism is to serve the people with news, views, comments and information on matters of public interest in a fair, accurate, unbiased and decent manner and language.
- The press is an indispensable pillar of democracy. It purveys public opinion and shapes it. Parliamentary democracy can flourish only under the watchful eyes of the media. Media not only reports but acts as a bridge between the state and the public.



- With the advent of private TV channels, the media seems to have taken over the reins of human life and society in every walk of life.
- The media today does not remain satisfied as the Fourth Estate, it has assumed the foremost importance in society and governance. While playing the role of informer, the media also takes the shape of a motivator and a leader.
- Such is the influence of media that it can make or unmake any individual, institution or any thought. So all pervasive and all-powerful is today its impact on the society. With so much power and strength, the media cannot lose sight of its privileges, duties and obligations.

Significance of Media ethics in contemporary times:

- The issues of paid news, media trial, non-issues being presented as real news while the real issues are sidelined, the **news is being doctored and fact distortion for profits and political favour, fake news, yellow journalism** are important concerns which are influencing public and impacting national security. For instance, fear mongering through media has led to mob lynchings, attacks on the migrant population.
- The **absence of objective journalism** leads to the false presentation of truth in a society which affects the perception and opinions of people. As observed in the case of Cambridge Analytica case, the biased news coverage on social media platform affected the Presidential elections in the U.S.
- **The chase for sensationalism and higher TRP rates** as observed in the coverage of 26/11 terrorist attacks in India risked the internal security of the nation. The sensationalism-driven reporting compromised the identities of rape victims and survivors despite SC guidelines.
- **Trial by media** does not follow the due process of law and can reduce the public trust in institutions of governance like the judiciary.
- **Paid news and fake news** can manipulate public perception and can instigate hatred, violence, and disharmony among the various community within society.
- With the **advent of social media, technological changes, the reach of media has grown profoundly**. Its reach and role in impacting public opinion have made it even more important to ensure its objectivity, non-partisanship calls for the enforcement of journalistic ethics.

Conclusion:

It is therefore important that for the media to carry out their important role effectively and efficiently, the media should operate within a well-defined code of ethics while maintaining their freedom and editorial independence. Since irresponsible journalism invites restriction, robbing off the media its freedom, professional conduct and ethical practice are vital to safeguarding freedom of the media and ensuring that public trust invested in the media is sustained.

In the light of the spread of misinformation regarding COVID-19 on social media networks, analyze the apprehensions associated with the spread of fake news in the present context. Propose suitable measures to tackle it.(250 words)

Reference: [The Hindu](#)

Why this question:

Misinformation linked to supposed cures for COVID-19 and misleading claims have proliferated on social media networks. Thus the question.

Key demand of the question:

One must analyze the apprehensions associated with the spread of fake news in the present context.

Directive:



analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Define what fake news is.

Body:

Explain Fake News pandemic:

In the light of the pandemic, the social media platforms have witnessed:

Misleading claims on supposed cures and posts related to ‘treatments’ that are not proven.

Medicine sales pitches or claims of techniques to prevent exposure and infection that are either not proven and/or filled with a lot of misleading information.

Conspiracy theories about the outbreak.

Instructions for individuals to stock up on supplies and food.

The misinformation about the pandemic has been deadly. False reports have appeared in numerous countries.

Discuss the concerns involved – issue of panic buying, claims can cause confusion among the public etc.

Conclusion:

Conclude with suitable measures to tackle the issue.

Introduction:

Fake news is a deliberate lie or a half-truth circulated with the intention to mislead or cause harm to a section of people. It is a type of yellow journalism that consists of deliberate misinformation or hoaxes spread via the traditional print, broadcasting news media, or via Internet-based social media.

The novel coronavirus, however, has opened up an entirely different problem: the life-endangering consequences of supposed cures, misleading claims, snake-oil sales pitches and conspiracy theories about the outbreak.

Body:

In the age of the internet (WhatsApp, Facebook, Twitter,) it is a serious problem as rumors, morphed images, click-baits, motivated stories, unverified information, planted stories for various interests spread easily among 35 crore internet users in India

Apprehensions associated with the spread of fake news in the present context:

- A study on COVID-19 misinformation that was published earlier this month.
- Using controlled tests with more than 1,600 participants, the study found that false claims were shared in part simply because people failed to think about whether the content was reliable.
- In a second test, when people were reminded to consider the accuracy of what they are going to share, their level of truth awareness more than doubled.
- That approach—known as “accuracy nudge intervention”—from social media companies could limit the spread of misinformation, the report concluded.
- In Iran, a fake remedy of ingesting methanol has reportedly led to 300 deaths, and left many more sick.
- Posts related to ‘treatments’ that are not proven, techniques to prevent exposure and infection that are either not proven and/or filled with a lot of misleading information, and instruction for individuals to stock up on supplies and food



- Two types of danger are posed by inaccurate information on the virus: that it “could incite fear or panic,” and “the potential for individuals to do harmful things in hope of ‘curing the illness’ or ‘preventing’ the illness.”

Suitable measures needed:

- The world’s biggest social media companies, including Facebook, Google, Twitter and ByteDance, are exploring an **industry-wide alliance** to curb fake news on their platforms in India.
 - The proposed alliance — to be named the **Information Trust Alliance (ITA)** — will be a grouping of digital platforms and publishers, fact checkers, civil society and academia that will aim to control the spread of harmful content, including fake news and hate speech.
 - **Facebook** has announced that it currently has over 500 full-time employees and at least 3,500 external contractors who focus on election work, on top of the 30,000 people across the company focused on safety and security issues.
- Facebook has placed authoritative coronavirus information at the top of news feeds and intensified its efforts to remove harmful content, including through the use of third-party fact checkers.
- a public health crisis is an easier arena than politics to set policies and to take a harder line on questionable content.
- AFP and other media companies, including Reuters and the Associated Press, work with Facebook’s fact checking program, under which content rated false is downgraded in news feeds so that fewer people see it
- **Educating the end-users** to be more discerning consumers of news by informing them of verification tools so that they can ascertain the accuracy of a news item before sharing it.
- **Press Council of India**, a regulatory body, can warn, admonish or censure the newspaper, the news agency, the editor or the journalist or disapprove the conduct of the editor or the journalist if it finds that a newspaper or a news agency has violated journalistic ethics.
- A better and more effective approach to limit the influence of hoaxes on WhatsApp and other platforms is to increase **media literacy**.
- The government should bring out a policy framework on the possible harm due to the internet messaging platforms to engage at a deeper level.
- Government of India could partner with local news groups to further educate citizens on how to identify real news from fake news.
- Imposing hefty fines, like in Germany the Social media companies face fines of up to €50m if they persistently fail to remove illegal content from their sites.

Conclusion

Government should **have a mechanism for immediately issuing of notice** against sites/people/agencies involved in spreading fake news. Secondly, Social media websites should be made **accountable** of such activities so that it becomes their responsibility to have better control over the spread of fake news. Finally, ordinary consumers of news can play a big role by, first,



waking up to the reality that all they read on WhatsApp and Twitter is not the gospel truth, and then, by refusing to pass on what they cannot independently verify with other sources.

INSIGHTSIAS



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SIMPLIFYING IAS EXAM PREPARATION

INSTA SECURE SYNOPSIS

MAINS 2020

GS-III

APRIL 2020



Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

With limited fiscal space and amidst the uncalled financial distress, the onus for economic revival rests with the RBI. Do you agree? Examine.(250 words)

Reference: [The Hindu](#)

Why this question:

The question is amidst the financial downturn that India is going to face in its near future owing to the distress caused by the corona outbreak.

Key demand of the question:

Explain in what way India's financial distress was exacerbated by the pandemic. With limited fiscal space, the onus for economic revival rests with the RBI.

Directive:

Examine – When asked to 'Examine', we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Briefly explain the context of the question.

Body:

First, present the factors that have caused the financial crisis – The constantly evolving Covid-19 pandemic have cast a long shadow on the global economy, which was already jolted by the US-China trade war.

Comment on the fears of a possible global recession; massive supply-chain related disruptions across a range of industries from containment efforts in China and other economies; amplification of demand-side shocks due to uncertainties as well as lockdowns and other containment measures domestically; and propagation of financial shocks and the US dollar credit crunch etc.

Discuss the role that RBI needs to play to handle the situation.

Conclusion:

Conclude by suggesting measures to address the issue.

Introduction:

The constantly evolving Covid-19 pandemic has cast a long shadow on the global economy, which was already jolted by the US-China trade war. India's financial distress was exacerbated by the pandemic. This global shock comes at a particularly inopportune time for India, as the economy was already on a very concerning downward trajectory since the turn of FY 2018-19.

Body:

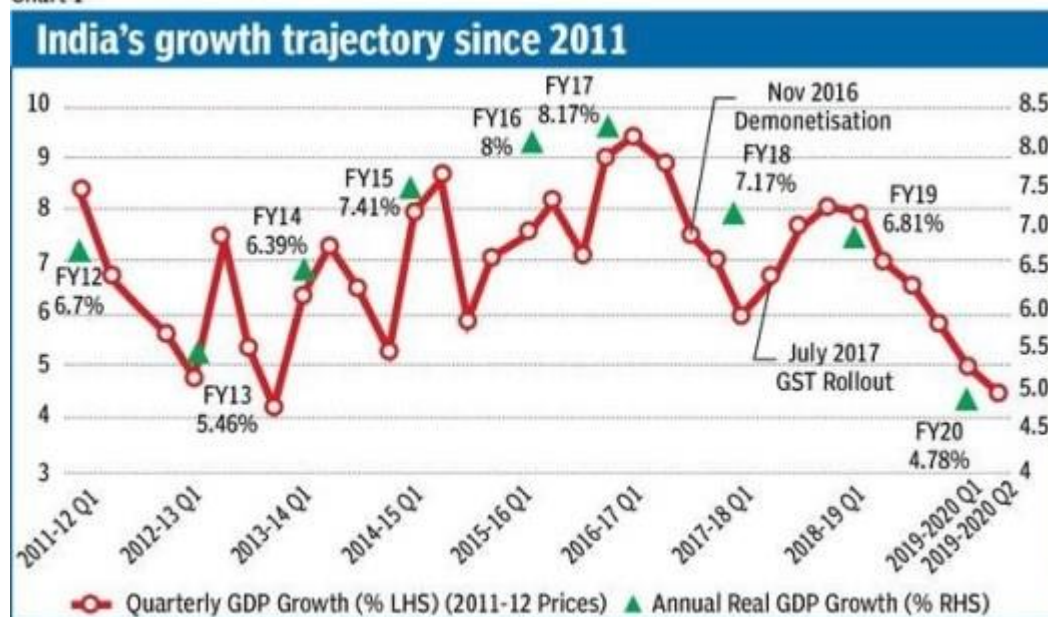
With the fears of a global recession on the horizon, Covid-19 appears to have dealt the global economy a triple-whammy:

- Massive supply-chain related disruptions across a range of industries from containment efforts in China and other economies.
- Amplification of demand-side shocks due to uncertainties as well as lockdowns and other containment measures domestically.
- Propagation of financial shocks and the US dollar credit crunch.

India's financial situation currently:



Chart 1



The roots of India's economic drag in recent years:

- Aftermath of the drastic demonetization experiment, which led to significant collateral damage.
- The effects of the rollout of the GST.
- Both these supply-side measures may have been well-intended, they have certainly contributed to marked economic disruptions.
- This has led to a deeply entrenched slowdown in the informal sector.
- This has, in turn, been exacerbated by acute banking sector problems, with banks being saddled by non-performing assets (NPAs) partly driven by “crony capitalism” stemming from the close nexus between banks and large “politically connected” businesses, giving rise to dubious lending practices and bad loans.
- Added to these banking woes has been a generalized credit crunch in the financial system due to stresses in the non-bank financial sector, especially following the collapse of Infrastructure Leasing & Finance Services (IL&FS).
- India's inability to exploit investor interest in looking beyond China (as Vietnam has, for instance), is a failure of the country's flagship “Make in India” initiative which seems to be becoming an excuse to revert to a degree of protectionism rather than of enhancing export competitiveness per se.

Impacts of COVID-19 on Indian Economy:

- The immediate economic and market impacts of the coronavirus have been on India's financial markets as well as the rupee, which hit a new low vis-à-vis the US dollar in March due to global risk-off sentiment
- For firms laden with dollar-denominated debts, a continuous weakening of the rupee is likely to intensify their struggles to repay their obligations.
- Beyond the financial shocks, India has to urgently find a way to cushion the demand-side shocks induced by potential lockdowns and other ongoing containment measures.
- a prolonged lockdown in the near future is likely to be economically costly, with the brunt of the pain falling disproportionately on those in the informal sector.

**Fiscal measures needed:**

- India will have to undertake more aggressive counter-cyclical fiscal measures at some stage to buffer against acute negative shocks arising from the spread of Covid-19.
- an appropriate fiscal response is imperative to uplift the economy and especially assist the most vulnerable, a massive fiscal expansion of the type envisaged by many other countries is likely to exceed the fiscal targets set by the FRBM.
- This would imply that the government has to either invoke the escape clause or ignore the rule temporarily with the hope of returning to a path of fiscal consolidation once the Covid-19 storm has been weathered.

Monetary measures by RBI:

- The Central bank has also taken some steps to ease the dollar credit crunch via long-term repo operations (LTRO).
- It offered a \$2-billion swap for six months to ease the pressure on the rupee.
- RBI took measures although it has not been part of the coordinated action by central banks in taking even more aggressive measures to counter the heightened volatility and adverse economic fallout from the coronavirus.

Conclusion:

Even if the RBI rolls out more aggressive measures, the broader concern that still remains is the inadequate monetary policy transmission that limits the effectiveness of any monetary stimulus in India, especially in the context of an impaired financial sector. Thus, the government must refocus its priorities towards dealing with economic stabilization and upliftment rather than pursue the more controversial aspects of its social and political agenda.

In what way can the vision and goals of the newly emerged start-ups be made more realistic during uncertain times in the country? Elucidate.(250 words)

Reference: [Live Mint](#)

Why this question:

The question is amidst the woes start-ups across the country are facing owing to the effects of pandemic.

Key demand of the question:

Explain how the vision and goals of the newly emerged start-ups be made more realistic during uncertain times in the country and that can help start-ups pass the storm.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:**Introduction:**

A start-up is a company or project initiated by an entrepreneur to seek, effectively develop, and validate a scalable business model.

Body:

Briefly discuss the issues and challenges the start-ups across the country are facing from supply constraints to funding.

Explain with specific examples such as – The outbreak has created new challenges across sectors, with start-ups, particularly those in the health space, bearing the brunt of the disruption caused by the 21-day lockdown.



Suggest measures to address the above challenges.

Conclusion:

Conclude that proper strategy, increase in customer interaction etc. help startups to turn adverse situations into their favor and make them realize their goals better than before.

Introduction:

The full impact of covid-19 on the world and our economy is impossible to be gauged. It is one of the most severe global crisis faced by the world in last 100 years. Some startups in areas like edutech, online gaming, collaboration, food delivery or healthcare will see growth during this period, others will face difficult choices in the weeks and months ahead. Startups, particularly those in an early stage, operate with a high level of uncertainty during the normal course of business.

Body:

Indian Startup Ecosystem:

- India is home to the world's third largest startup ecosystem, having added over 1,300 tech startups in 2019.
- India now hosts 24 unicorns—a term to describe startups valued at \$1 billion—the third-highest number of unicorns in a single country in the world.
- The volume of investments in startups also grew.
- Startups created 60,000 direct jobs in 2019 alone.
- The start-up landscape in the country is becoming the epitome of innovation, with companies bringing out solutions that are aimed at solving locally relevant issues.
- Startups can act as vehicles for socio-economic development and transformation.
- India has immense potential both in terms of technological innovation and implementation of business models.
- In light of the current economic environment, IPOs from India into the US could emerge over the next 12 to 18 months

Measures for an emerging Indian startup ecosystem in such times of crisis:

- **Focus on safety and engagement:**
 - Many of our startups have been working from home for several weeks now.
 - Some have seen increase in productivity, while others have seen a drop of 15-20%.
 - The mantra here is to enable the teams with the right tools, develop daily rhythms to ensure seamless operations, set daily or weekly goals and, most importantly, communicate, communicate and communicate.
 - Engaging the employees, often and with empathy, is critical.
 - Set up a regular cadence of team video calls and check in often on how team members are doing—both personally and professionally.
- **Plan for a range of 'worst-case' scenarios:**
 - Map out all possible scenarios, come up with a strategy for each one and figure out how you can extend your runway in the most likely scenarios.
 - Think about what you can cut, from marketing costs through to leases.



- The last area you should consider reducing is staff costs, because these are the people helping you build your dream.
- If you must address talent, talk with your team about a combination of options—pay cuts or deferrals, alternate working days, furloughs and reassigning roles—before reducing headcount. And if you must cut pay, lead from the front.
- Start with your own, then trim executive pay before others.
- **Focus on customer engagement:**
 - Take this time to get even closer to your customers.
 - Think of innovative ways in which you can connect with your users: gamification, online forums, or even asking customers to co-create new product lines.
 - If your brand can give back to the community in some way, do that, too. It's a great time to show empathy and to demonstrate to customers that you care.
 - If you are a B2B company, take this time to understand what your customers' priorities are. Consider changing your narrative to align with those needs.
- **Double down on your product:**
 - This is a good opportunity to build the “must-have” you have been waiting to add to your product, or think about how to engage new audiences.
 - By staying close to the market, you may find new opportunities.
 - Companies with an offline component are accelerating their digital transformation. Logistics may be mired right now, but that will be resolved soon.
 - Covid-19 is a wake-up call for consumer companies without an e-commerce strategy.

Conclusion:

The current crisis is not like any financial downturn we have seen in recent history. But tough times can bring out the best in startup, its leadership team and your organization, bringing teams closer together and driving clarity in a startup's mission and vision.

Can Health sector be a way out of the middle-income trap for India in the coming future? Discuss the possibilities and give your opinion.(250 words)

Reference: [Economic Times](#)

Why this question:

The question propounds upon the prospects of the Indian health sector in the coming future.

Key demand of the question:

Explain the prospects of Indian health sector/industry post corona pandemic and if it can be a way out for its middle-income trap.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain the importance of India's health sector.

**Body:**

First explain in what way India is amongst one of the most capable countries that are handling/containing the situation very well.

Explain the potential that India has in terms of Health industry.

Post-pandemic, India may thus support the world with health infrastructure as its centerpiece.

Hint at the on-going efforts of India to fight the pandemic.

Conclusion:

With a health-centered investment agenda, India can supply doctors, nurses, paramedics, technicians and other medical professionals to the world. It can also supply valuable data and analytics. Even with the country busy fighting the coronavirus, planners need to start thinking of tomorrow's battles.

Introduction

Even before the coronavirus, India was at a crossroads. At roughly \$2,000 a year, per capita income in 2018 was half of what the country needed to become an upper-middle-income economy. Catching up with advanced nations posed a more daunting challenge.

The debate was whether India should become a manufacturing hub to the world and take over China or prioritizing the domestic economy, expanding its rather narrow base of mass consumption. The answer in the **post-pandemic world** may support the second strategy, **with health infrastructure** as its centerpiece.

Body**India's potential in healthcare**

- According to the Indian Brand Equity Foundation (IBEF), India is the **third-largest exporter** of pharmaceutical products in terms of volume. Around 80% of the market is composed of **generic low-cost drugs** which seem to be the major driver of this industry.
- The **medical devices sector** is the smallest but one of the fastest-growing sectors in the country like the health insurance marketplace. Recently, the government has been positive on clearing regulatory hurdles related to the import-export of medical devices, and has set a few standards around clinical trials.
- India is a popular destination for **medical tourists**, given the relatively low costs and high quality of its private hospitals. International students / patients in India should expect to rely on private hospitals for advanced medical care.
- **Alternate medicine:** India also is a top destination for medical tourists seeking alternative treatments, such as Ayurveda medicine and naturopathies therapies. Homeopathy, Unani are also being popularized in recent times.
- **Medical Education:** Medical education infrastructures in the country have shown rapid growth over the past few years.
 - The country has 529 medical colleges, 313 Dental Colleges for BDS & 253 Dental Colleges for MDS.
 - The total number of admissions for academic year 2019-20 in Medical Colleges is approx. 70,000 including Government & Private Medical colleges.
 - The Dental Colleges saw an admission of 26,960 in BDS and 6,288 in MDS in the academic year 2018-19.



Can healthcare be India's way out of Middle Income trap?

Yes

- India's pharmaceuticals is robust and export of Hydro-chloroquine to many nations during the covid-19 crisis is a testament to this.
- The estimated Foreign Tourist Arrivals (FTAs) in the country on Medical purpose during the years 2015, 2016 and 2017 are **34 lakh, 4.27 lakh and 4.95 lakh** respectively. It offers a diverse portfolio of niche tourism products – cruises, adventure, medical, wellness, sports, MICE, eco-tourism, film, rural and religious tourism. India has been recognized as a destination for spiritual tourism for domestic and international tourists.
- Current financial year (2020), India is expected to rank amongst the top 3 healthcare markets in terms of incremental growth.
- The present year, the healthcare information technology market is expected to grow 1.5 times from current US\$1 billion.
- By 2022, the diagnostics market is expected to grow at a CAGR of 20.4% to reach US\$32 billion from US\$5 billion in 2012.
- Current financial year, the Indian telemedicine market is expected to grow at a Compound Annual Growth Rate (CAGR) of 20% to reach US\$32 million from US\$15 million.

No : Shortcomings of India's healthcare sector

- **Overstretched health infrastructure:** A single state-run hospital for every 55,591 people on average and a single hospital bed for every 1,844 people.
- **Shortfall of Doctors:** India needs about 10 times more doctors to meet the norms prescribed by the World Health Organization, a shortfall of at least 500,000 doctors.
- **Regional Disparity:** India's health performance, an index that includes access to primary care, maternal mortality rates and child health, runs the spectrum, with some states outperforming others by almost 2.5 times, according to the government-run think tank NITI Aayog.
- **Health care spending:** India spent an average of **\$62.72 per person** on health care in 2016, according to WHO, compared to China's \$398.33. India is yet to increase public expenditure on health to 2.5% of GDP as per the National Health Policy 2017 as against 1.2% GDP now.
- The **Global Burden of Disease study of 2016** (GBD 2016), published in the medical journal Lancet in 2018, put India at number 145 among 195 countries (including sub-Saharan Africa), in the Healthcare Access and Quality (HAQ) Index.
- The World Health Organisation (WHO) data shows India's Out of Pocket **OOP expenditure stood at 65% in 2016**, the last year for which the comparative data is available.

Way Forward

- One way to solve this problem is to address the infrastructure issue, by standardising diagnostic procedures, building rural clinics, and developing streamlined health IT systems, and improving efficiency.
- The need for skilled medical graduates continues to grow, especially in rural areas which fail to attract new graduates because of financial reasons.
- India needs to be becoming a major international hub for the global healthcare industry. It is already home to the world's largest medical tourism zone. The hubs would stimulate private investment in new developments from domestic and international players, Research & Development in medical field, advanced technology zone including Global University for Healthcare sector and its focus on becoming a global medical tourism hub.



- The hub of a diverse healthcare economy that includes the life sciences and a digital health cluster that leverages the strong private investment/venture capital landscape, major academic medical centers, institutions of higher learning and a highly skilled and educated workforce to meet the shortage of healthcare workers in India.

Conclusion

There should be a strong commitment from both the public and private sectors. Players from both sides must work together and investing to continue building an ecosystem that fuels innovation in the life sciences and digital health industries. The healthcare innovations and unprecedented public-private support could boost the healthcare economy in India and overcome the middle income status.

Explain in what way using dollar swap line with other countries can help the Indian economy in uncertain times. (250 words)

Reference: [Indian Express](#)

Why this question:

India is working with the United States to secure a dollar swap line that would help in better management of its external account and provide extra cushion in the event of an abrupt outflow of funds, according to banking industry and government sources. Thus the question.

Key demand of the question:

Explain the utility and benefits of using a dollar swap line in the current conditions of the pandemic.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Briefly explain what a dollar swap line is.

Body:

To start with explain that while India is largely expected to tide over any challenge posed by continued outflows of funds from the markets, a swap line with the US Federal Reserve provides additional comfort to the forex markets. Discuss how a swap facility works. Explain how a currency swap agreement acts as a tool for quantitative easing of the Indian economy.

Conclusion:

Conclude with importance of it.

Introduction:

Dollar swap is a kind of currency swap wherein between the two countries, there is an agreement to exchange currencies with predetermined terms and conditions. India is working with the United States (US) to secure a dollar swap line. It would help in providing an additional comfort in an event of any abrupt outflow of funds. India already has a currency swap facility with other central banks like Japan, SAARC nations, UAE etc. Currently, India, China, Russia, Saudi Arabia and South Africa do not have a currency swap line with the US.

Body:

Working of Currency swap lines:

- In a swap arrangement, based on the market exchange rate at the time of the transaction,
- The US Fed provides dollars to a foreign central bank, and
- The bank provides the equivalent funds in its currency to the Fed.



- The parties agree to swap back their currencies at a specified date in the future, at the same exchange rate as in the first transaction.
- These swap operations carry no exchange rate or other market risks, as transaction terms are set in advance.

Current need for currency swap line:

- Forex reserves/assets are assets held on reserve by a central bank in foreign currencies. These may include foreign currencies, bonds, treasury bills and other government securities. These are held to ensure that a central bank has enough funds if its national currency weakens/ devalues rapidly.
- As concerns on the economic effects of COVID-19 hit investor sentiment, Foreign institutional investors (FIIs) have been large sellers of Indian equity and debt markets in March and April so far leading to outflow of funds from the country.
- To stabilize the rupee which recently fell below the 76 level against the dollar, India liquidated its forex assets.
- India's foreign currency assets had declined by around \$7.50 billion in two weeks to \$ 439.66 billion as on March 27.
- According to Reserve Bank of India (RBI) data, 63.7 per cent of India's foreign currency assets — or \$256.17 billion — is invested in overseas securities, mainly in the US treasury.
- While India is expected to comfortably tide over any challenge posed by continued outflows of funds from the markets, given the adequacy of foreign exchange reserves, a swap line with the US Fed provides an additional comfort to the forex markets.

Advantages of dollar swap line:

- A swap line with the US Federal Reserve would help in better management of the external account of India.
- It would also provide extra cushion in the event of an abrupt outflow of funds from the forex markets.
- So far, foreign institutional investors (FIIs) have been large sellers in the Indian equity and debt markets in March and April 2020.
- There is apprehension that the economic impact of COVID-19 will last for a significant length of time.
- So, the government and the Reserve Bank of India (RBI) cannot lower their guard on the management of the economy and external account.

Conclusion:

These swap operations carry no exchange rate or other market risks as transaction terms are set in advance. Central banks and Governments engage in currency swaps with foreign counterparts to meet short term foreign exchange liquidity requirements or to ensure adequate foreign currency to avoid Balance of Payments (BOP) crisis till longer arrangements can be made.

Explain in the backdrop of the COVID-19 pandemic, how dependence on a more liberalized economic model has proved to be counter-productive and disastrous for the country. (250 words)

Reference: [The Hindu](#)

Why this question:



The authors of this article argue that the COVID-19 pandemic reveals how dependence on a more liberalized economic model has proved to be counter-productive and disastrous in the current scenario. Thus the question.

Key demand of the question:

One must evaluate the challenges related to the liberalized economic model amidst the COVID-19 pandemic.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Briefly set the background of the question's context.

Body:

To start with, explain the change in the industrial model in the past – in the late 1980s, transnational corporations started shifting their production base to developing countries, especially Asia, in search of cheap labour and raw materials. Developed countries supported the move as it helped them shift the polluting and labour-intensive industries to other countries, while still retaining the ownership. Thus, the world witnessed the development of global supply chains in many products. Discuss the current case; explain the fallacies brought out by the COVID-19 situation. Take hints from the article to form your answer content. Present the case of India.

Conclusion:

Conclude that the current pandemic should lead the countries to rethink and reevaluate the economic efficiency theory propounded by the LPG principle. There should be the emphasis on an industrial policy that helps maintain core capacity in essential products.

Introduction:

India's LPG reforms in 1991-92 marked the beginning of the end of the 'License Raj' in India. The Budget also announced the reduction of import duties and paved the way for foreign-manufactured goods to flow into India. Though many developing countries participated in the global production, the substantial value addition in developing countries happened in a few production hubs, of which China emerged to be a major one.

Body:

Economic liberalization and its impacts on the governments' capacity to deal with the crisis:

▪ **Undermining the manufacturing capabilities of health products in India through imports:**

- The short-sighted liberalization policy measures, with the objective of enhancing profitability of the private sector, allowed the import of raw materials from the cheapest sources and resulted in the debasing of the API industry, especially in essential medicine.
- According to a report of the Confederation of Indian Industry (CII), nearly 70% of India's API import is from China.
- The disruption in the supply of API due to the COVID-19 outbreak has impacted the production of not only medicines required for COVID-19 patients, but also of other essential medicines in India.

▪ **Import dependency:**



- Dependence on imports affects the ability of Indian diagnostic companies to provide an affordable test for all those who want to test for COVID-19. Now the country is not able to get required quantities of test kits, PPE and parts of ventilators through importation.
 - The dependence on Reagents, an important chemical component for testing, is limiting the capacity of the government from expanding testing because the cost of each test is ₹4,500.
 - There are only a few domestic manufacturers who can produce PPE and medical devices like ventilators.
- **Loss of jobs and poor working conditions:**
- Through liberalization developing countries were asked to ease their labour protection laws to facilitate global production and supply chains popularly known as global value chains.
 - As a result, people were forced to work in precarious working conditions without any social security net.
 - This created an unorganized army of labourers and is preventing many developing country governments from effectively offering relief.
 - The resultant loss of manufacturing base has affected the ability of many governments, including of developed countries, to put up an effective response to the crisis.
 - The U.K. Prime Minister asked the country's manufacturers to produce ventilators in order to provide care for critical COVID-19 patients.
 - Spain nationalized all its private hospitals.
 - In an indirect show of power, Chinese billionaire Jack Ma sent a flight containing 5.4 million face masks, kits for 1.08 million detection tests, 40,000 sets of protective clothing and 60,000 protective face shields to the U.S exposing USA's import dependency.
- **Lack of credible information about the private sector:**
- For instance, as part of the removal of 'License Raj', the government stopped asking for information from the manufacturer to file the quantity of production of various medicines.
 - As a result, it has taken weeks now and a series of meetings for the government to gather information about stocks and the production capacity of pharmaceutical companies.
 - Similarly, there were difficulties in finding out India's production capacity of PPE, medical devices and diagnostics.
 - The only government data available in the public domain is with regard to the production of vaccines.

Way forward for the private sector companies in today's crisis:



- In the Covid-19 response, the private sector in the country — for-profit and not-for-profit segments — has to play an even more important role, as it is the dominant provider of health services.
- The National Sample Survey Office's 71st round data shows that private hospitals, clinics and nursing homes provide over 70% of health care.
- Data on the nearly 10 million treatments received under the Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PM-JAY) corroborate this finding.
- According to the World Health Organization, a critical lesson from the 2014-16 West African Ebola crisis is that both the public and private sectors need to work in tandem in responding to large-scale epidemics. So, the private sector-led economic growth model deserves a rethinking so that there is better coordination between the government and the private sector to deal with such a crisis.

Analyse the impact of Corona virus pandemic on the Indian Pharma sector.(250 words)

Reference: [Economic Times](#)

Why this question:

The article brings to us a detailed narration of the effects of ongoing pandemic on the Indian Pharmaceutical Industry.

Key demand of the question:

One must discuss the challenges and opportunities pertaining to India's pharmaceutical industry.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Briefly state the ongoing crisis across the country owing to the pandemic onset.

Body:

The question is pretty much straightforward and there isn't much to deliberate. Bring out the impact of the pandemic on the pharma industry – explain first the stress it puts on the resources of the industry, then move onto explain the avenue that it provides to Indian pharma sector to establish its global footprint.

Conclusion:

Conclude amidst all negativities it brings the Pharma Industry a chance to become a remarkable industry in the world.

Introduction:

India is the largest provider of generic drugs globally. Indian pharmaceutical sector industry supplies over 50 per cent of global demand for various vaccines. The novel coronavirus pandemic in China, with its epicentre in Wuhan, capital of Hubei province, threatens to starve India's pharma industry of key inputs. India is massively dependent on imports of active pharmaceutical ingredients (API), the bulk drugs that give medicines their therapeutic value, largely from 30-40 units in Hubei.

Body:

Indian Pharmaceutical industry:

- The Indian pharma industry has been a world leader in generics both globally and in domestic markets contributing significantly to the global demand for generics in terms of volume.
- Made-in-India drugs supplied to the developed economies such as the US, EU and Japan are known for their safety and quality.

Threats posed by Coronavirus on Indian Pharma industry:

Telegram: <https://t.me/insightsIAStips>

Youtube: <https://www.youtube.com/channel/UCpocbcX9GEIwaile4HLjwA>

Facebook: <https://www.facebook.com/insightsonindia>



▪ **Competition in drug manufacturing:**

- In recent years, India has seen increasing competition from China, which it has been able to leverage due to its inherent cost advantage, manufacturing intermediates and APIs at a cost much lower than those in India.
- This has resulted in a gradual increase in API imports from China to India and this in turn has led to killing of domestic manufacturing capacity for certain key APIs and their advanced intermediates.

BULK DRUG IMPORTS FOR MEDICINES

| Year | Total | From China |
|---------|-------|------------|
| 2014-15 | 2.77 | 1.78 (64%) |
| 2015-16 | 2.97 | 1.94 (65%) |
| 2016-17 | 2.74 | 1.83 (67%) |
| 2017-18 | 2.99 | 2.06 (69%) |
| 2018-19 | 3.56 | 2.41 (68%) |

All figures in \$billion; figures in parentheses (rounded off) are percentage of China imports in total

Source: Lok Sabha questions

• **Risks from India pharma's China linkages**

- India's large import dependence on China (nearly 70% by value) has become a significant threat to India's healthcare manufacturing and global supply chain.
- While Indian pharma players over a time period have steadily migrated up the value chain to focus on value-added formulations with higher margins, but this over dependence on China has increased the threat to the nation's health security as some of these critical APIs are crucial to mitigate India's growing disease burden.

• **Supply chain disruption for India pharma:**

- Any disruption in supply chain of APIs can result in significant shortages in the supply of essential drugs in India.
- Some of the critical APIs for high-burden disease categories such as cardiovascular diseases, diabetes and tuberculosis are listed in the National List of Essential Medicines (NLEM).



- **Major earning cuts ahead for pharma firms:**

- Edelweiss Securities says the novel coronavirus, or COVID-19, pandemic has caused severe supply-side disruptions in various sectors, earnings will be cut by 10-15%.
- Pharma as a sector has emerged as a strong contender to drive the next leg of rally, whenever it comes. In anticipation, pharma stocks have seen a huge run up in the last 10 days.
- This is not just true for India, but globally too pharma companies have performed well.
- While in the short term, most companies will bounce back from the last 5 year of underperformance, this time around, the leader will be different.

The Department of pharmaceuticals has charted out a plan to boost domestic local manufacturing of Active Pharmaceutical ingredients(API) in order to reduce its import dependence on China. The plan includes:

- Development of clusters.
- Incentives to promote indigenous manufacturing.
- Strengthen regulatory mechanism.
- Higher fee structure to reduce import.
- Single window clearance for setting up manufacturing plant.

Other measures needed:

- India's strong innovation capabilities aided partnerships would help in overcoming these problems.
- Developing our R&D sector to reduce dependency on foreign countries for raw materials
- The introduction of pharmaceutical product patents and the mandatory implementation of good manufacturing practices is the need of the hour.
- It is necessary for the Indian pharmaceutical industry to become globally competitive through world-class manufacturing capabilities, with improved quality and a higher efficiency of production, and there is a need to stress on the up-gradation of R&D capabilities.
- Training and development of human resources for the pharmaceutical industry and drug research and development should be done accordingly;
- There is also a need to promote **public-private partnership** for the development of the pharmaceuticals industry; promote environmentally sustainable development of the pharmaceutical industry; and enable the availability, accessibility, and affordability of drugs.
- Improvement in industrial practices to provide better training and support services for employees to perform their job functions.
- A drugs price index would surely make sense.
- Using multilateral organization like WTO against the illegal trade practices.
- Funding for the pharma companies might be a way to move forward.
- IPR Think Tank formed by the Government to draft stronger national IP policies.

Way forward:

- In 2015, the 'Katoch committee' put out a set of recommendations on reviving API production, which include reviving PSUs for manufacturing critical drugs such as penicillin and paracetamol.



- The setting up of mega parks with common effluent treatment plants, testing facilities and captive power plants has been mooted.
- On the financial side, the panel has suggested setting up a professionally managed equity fund for producing APIs and duty exemptions for capital goods imports.
- These facilities can have developed to world class standards, restoring the recent damage to India's reputation on the quality front.

The government's ban on Foreign Direct Investments (FDI) through the automatic route from land border sharing neighboring countries though well-intended may come with unintended consequences. Analyse. (250 words)

Reference: [The Hindu](#)

Why this question:

The spokesperson of the Chinese Embassy has said that, India's recent policy to curb opportunistic takeovers of domestic companies goes against the [World Trade Organisation \(WTO\)](#) principles.

Key demand of the question:

Explain the effect of the government's ban on Foreign Direct Investments (FDI) through the automatic route from land border sharing neighboring countries, also discuss the associated consequences.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Briefly state the context of the question.

Body:

To start with, discuss the changes in the Foreign Direct Investment (FDI) policy. Under the revised FDI policy, prior government approval is mandatory for FDI from countries which share a land border with India. The new policy states that when an entity of a country, which shares land border with India or where the beneficial owner of an investment into India is situated in or is a citizen of any such country, can invest only under the Government route. India shares land borders with Pakistan, Afghanistan, China, Nepal, Bhutan, Bangladesh and Myanmar. Discuss the possible advantages and disadvantages associated with the policy.

Conclusion:

Conclude with way forward.

Introduction:

A Foreign Direct Investment (FDI) is an investment in by foreign investors in the foreign based company. Mainly there are two types of FDI, one is Green Field Investment (a fresh company is established in a foreign country) and the other is Portfolio Investment (shares of a foreign company are purchased or ownership acquired in a foreign company). FDI under the automatic route does not require prior approval either by the government of India or by the Reserve Bank of India. Investors only require to notify and file documents in the concerned RBI office.

In a decision fraught with geopolitical and economic ramifications, the Indian government amended its foreign direct investment (FDI) policy to put a blanket ban on investments through the automatic route by entities from countries that share a border with India.

Body:

The move is seen as an attempt to ward off the threat of "opportunistic" Chinese takeover of Indian companies, whose valuations have been badly hit by the coronavirus pandemic. The curbs,



which were **already in force for investments from Pakistan and Bangladesh**, will extend to entities where Chinese citizens have “beneficial ownership” to ensure that the restrictions are not circumvented by routing investments via Hong Kong, Singapore or other countries.

Rationale behind restriction on Automatic route of FDI inflow:

- The Indian government’s move, cleared by the Union Cabinet, comes days after it emerged that the People’s Bank of China has increased its stake in HDFC Bank, the country’s largest private lender, to over 1%.
- But while the PBOC investment came through the portfolio investment route, the FDI move is more strategic and is aimed at blocking any attempt to restrict entities from across the border to acquire a significant beneficial interest.
- Stock market regulator SEBI is separately keeping tabs on investments from China and some other countries.
- The latest move by the department for promotion of industry and internal trade, the agency responsible for FDI policy, will not just impact new investments but also equity infusion in existing companies in India, where Chinese entities have equity stakes.
- Most FDI flows into India are under the automatic route, which means companies only need to inform authorities after the investment is made.
- The latest move signals a growing worry within government that China might seek to acquire Indian companies by exploiting their financial vulnerability.
- The stunning move is in stark contrast to the restraint the Indian government has exercised in not joining the global chorus of indignation over China’s attempt to conceal the outbreak of the pandemic in Wuhan — a lapse that has been widely adjudged to have been a major contributor to the enormity of the public health emergency that has already claimed over 1.5 lakh lives globally and crippled economies and markets.

Significance of restricting Investments:

- Sources said the government had explored the option of putting a general ban on foreign investment through the automatic route, but decided against it due to wariness of being seen as having turned protectionist and insular.
- Putting FDI from all countries under the approval route would have also slowed down inflows, which are critical at this time.
- With the threat of Chinese capital moving in appearing serious, the authorities decided to be specific in a turn away from the cautiousness that has defined New Delhi’s approach towards Beijing.
- Sources said that during the deliberations one school of thought had favoured a more nuanced approach, arguing that greenfield investments should be let in, but the leadership decided to go the whole hog.

Concerns raised against the move:

- The additional barriers set by Indian side for investors from specific countries violate WTO’s principle of non-discrimination, and go against the general trend of liberalisation and facilitation of trade and investment.
- The Chinese embassy not only cited its investments but also the “donations” made by Chinese companies to help fight the Covid-19 pandemic.



- As of December 2019, China's cumulative investment in India has exceeded 8 billion US dollars, far more than the total investments of India's other border-sharing countries. The impact of the policy on Chinese investors is clear.
- Chinese investment has driven the development of India's industries, such as mobile phone, household electrical appliances, infrastructure and automobile, creating a large number of jobs in India, and promoting mutual beneficial and win-win cooperation.
- Chinese enterprises actively made donations to help India fight COVID-19 epidemic.
- China also accused India of not conforming "to the consensus of G20 leaders and trade ministers to realize a free, fair, non-discriminatory, transparent, predictable and stable trade and investment environment, and to keep our markets open."
- Therefore, Without the appropriate legal and regulatory sanction, India might experience reciprocal measures.
- In order to protect India's unicorn, there is need to devise a scheme of preferential or special shares which a unicorn can issue to foreign investor.
- These shares will preserve the decision making by Indian innovators, while also providing them access to foreign capital.

Way forward:

- There is a need for India to develop new legal and institutional tools. As the ones employed by US and EU member states such as data protection laws or revised mergers and acquisitions rules, and institutional bodies.
- The Chinese have already restarted manufacturing when the rest of the world still grappling with coronavirus.
- China has several months' advantage over all other major economies and can therefore secure significant benefits.
- After each crisis in recent years, China has consolidated itself. Indian government is trying to pre-empt acquisitions.
- Countries need to strengthen their domestic capabilities to meet the Chinese challenge.

It's not just Demand and Supply, there's more to the story of Crude Oil prices, examine the factors that affect the oil prices across the world.(250 words)

Reference: [Hindustan Times](#)

Why this question:

The question is based on fall in Oil prices and what opportunities do the sudden crash in crude oil prices offers for India, How the country should make the most of a second oil windfall.

Key demand of the question:

Explain the fall in oil prices, and examine the factors that contribute to the fall apart from mere demand supply equation.

Directive:

Examine – When asked to ‘Examine’, we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Briefly talks about the impact of recent oil prices crash in general and its causes.

Body:

Explain that It's not just Demand and Supply, there's more to the story of Crude Oil prices. Four major factors help determine the price of oil: Supply & consumption, government policies, Geopolitics and



financial markets. Elaborate on the above factors with suitable examples. Discuss what opportunities the current situation holds for India.

Conclusion:

Conclude with what should be India's role amidst the oil shocks across the world and how should it benefit from it.

Introduction:

The price of Texas oil futures fell below zero dollars per barrel on Monday. In theory, and for a fleeting moment, an empty barrel of crude oil was worth more than a full one. This was a symbolic milestone, a consequence of a lack of storage and quarter-end fire sales rather than a stable market situation.

Body:

Current scenario:

- This unprecedented shift comes as the global oil markets continue to grapple with a pandemic-driven collapse in demand. At the start of 2020, a barrel of WTI cost around \$60.
- Prices had dropped swiftly because of the coronavirus, landing at around \$18 a barrel.
- Then on 20th April, they plummeted through the floor.
- WTI for May delivery settled at a negative \$37.63 — meaning traders are paying \$37.63 to get someone to accept a delivery of a barrel of oil.
- The plunging price of WTI was driven by a trading contract deadline to oil traders to sell off the current futures contract.
- And they needed buyers that are capable of receiving and storing that much oil. And, those buyers are in short supply.

Factors that affect the crude-oil price:

- **Situation prior to COVID- 19 outbreak:**
 - Even before the COVID-19 outbreak induced lockdowns across the world, crude oil prices had been falling over the past few months.
 - The reason was too much supply and too little demand.
 - In early March, Saudi Arabia and Russia disagreed over the production cuts required to keep prices stable.
 - The OPEC plus, which includes those countries which export Oil, failed to reach an agreement in March, 2020 on production cuts to arrest the falling prices in the wake of COVID-19 pandemic.
 - As a result, oil-exporting countries, led by Saudi Arabia, started undercutting each other on price while continuing to produce the same quantities of oil.
 - This was an unsustainable strategy under normal circumstances but what made it even more calamitous was the growing spread of novel coronavirus disease, which, in turn, was sharply reducing economic activity and the demand for oil.
- **Post- lockdown:**
 - With each passing day, the developed countries were falling prey to COVID-19 and with each lockdown, there were fewer flights, cars and industries etc. using oil.



- This meant that the supply-demand mismatch continued to worsen right through March and April.

Other factors:

- Similar to the stock market, which involves trading investments in various companies, people also trade in commodities at financial markets.
- People purchase “futures” — a sort of bet on whether a commodity will increase in price at a later date. Once locked into a futures contract, the buyer will get his or her commodity at that price and that date, regardless of whether the market price has changed or not.
- Laws aimed at preventing climate change will likely raise the price of energy, too.
- Taxes on petroleum products by nations can also affect consumption pattern and consequently, the prices.
- The governments continue to find ways for people to switch to power sources like wind and solar energy — and drive more fuel efficient cars — so it’s possible that the demand for oil will go down, simply because we won’t need it as much anymore.

Impact on India:

- The Indian crude oil basket does not comprise WTI — it only has Brent and oil from some of the Gulf countries — so there is no direct impact.
- But oil is traded globally and weakness in WTI is mirrored in the falling prices of the Indian basket as well.

Way forward for India:

- India should look at how it can quickly enhance its strategic reserves to benefit from the falling prices; China, for instance, is doing just that.
- India should assure future supplies as this is a good time to enter into long-term contracts.
- And finally, India should also judge how the present oil crisis will affect, for better or for worse, its long-term energy strategy.

Conclusion:

New Delhi should keep a firm eye on its long-standing goals of promoting solar and wind energy, shifting more baseload power to natural gas, and shutting its most-polluting coal-fired power plants, but it is unlikely that even the most cost-effective of these will be able to match oil prices in the short and maybe even medium term.

Discuss the significant possible contributions that the “Swamitva Yojana” can make to boost rural economy.(250 words)

Reference: narendramodi.in

Why this question:

On Panchayati Raj Diwas (April 24th), the Prime Minister of India launched ‘Swamitva Yojana’ or Ownership Scheme to map residential land ownership in the rural sector using modern technology like the use of drones.

Key demand of the question:

Explain in detail the significant possible contributions that the “Swamitva Yojana” can make to boost rural economy.

Directive:



Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain the coming of the scheme into picture.

Body:

To start with, present a brief overview of the scheme. Explain the key features of the Yojana. Discuss the benefits of the scheme and highlight the need and significance of the scheme. Bring out challenges or concerns associated if any and suggest solutions to the same.

Conclusion:

Conclude that the new scheme is likely to become a tool for empowerment and entitlement, reducing social strife on account of discord over properties.

Introduction

On the Panchayati Raj Diwas on April 24, the prime minister launched the 'Swamitva Yojna', or the ownership scheme, to map residential land ownership in the rural sector with the help of modern technology like drones.

The scheme aimed to revolutionize property record maintenance in India was launched on the Panchayati Raj Diwas by the prime minister, who also interacted with members of Gram Panchayats across the country through video conferencing.

Body

Swamitva Yojana: Features

- **Objective:** The **Swamitva Scheme** is to provide an integrated property validation solution to the rural areas of the country.
- **Technology used:** Under this scheme now the demarcation of inhabited land of the rural area will be done according to the **latest surveying methods using drones**.
- **Implementing Agency:** The Panchayats of the rural areas were expecting the launch of this scheme for a long time. For the demarcation of inhabited land, the latest surveying method is Drone's technology.
- The scheme will be carried out in close coordination with the Central Panchayati Raj ministry, Survey of India, Panchayati Raj departments and Revenue departments of various states.

Benefits to boost rural economy

- It is expected to go a long way in **settling property rights** in rural hinterlands and likely to become **a tool for empowerment and entitlement**, reducing social strife on account of discord over properties.
- The delivery of property rights through an official document will enable villagers **to access bank finance** using their **property as collateral**.
- The residential land in villages will be measured using drones to **create a non-disputable record**.
 - It is the latest technology for surveying and measuring of land.
 - Drones will draw a digital map of every property falling within the geographical limits of a village and **demarcate** the boundaries of every **revenue area**.



- The property records for a village will also be maintained at the Panchayat level, allowing for the **collection of associated taxes from the owners**. The money generated from these local taxes will be used to build rural infrastructure and facilities.
- Freeing the residential properties including land of title disputes and the creation of an official record is likely to result in appreciation in the market value of the properties.
- The accurate property records can be used for facilitating tax collection, new building and structure plan, issuing of permits and for thwarting attempts at property grabbing.

Significance of the Scheme

- The need for this Yojana was felt since several villagers in the rural areas don't have papers proving ownership of their land.
- In most states, survey and measurement of the populated areas in the villages has not been done for the purpose of attestation/verification of properties.
- When we look at the benefits of this scheme we will have to understand this point that most people don't have the papers of their land in a rural area. In this case, the chances of disputes get increased in rural areas. This scheme will fill this gap and make the people aware of their ownership of land in rural areas.
- Swamitva Yojana is aimed to fill the above gap to provide ownership rights to people in the villages.
- As the property record of a village will be managed at the Panchayat level, the collection of taxes from the local landowners will also be done at this level only and collected money will be used for **the benefit of the local area and people**.

Challenges

- The scheme does not spell out how to resolve existing disputes on land in the rural areas.
- There is a lack of grievance redressal mechanism and villagers have no means to place their objections or bring notice to the authorities regarding any discrepancies.
- The scheme has not addressed the level of reliability of the drone survey, as accuracy rate may vary.
- Before implementation, people must be apprised of the scheme thoroughly and made aware of their rights and benefits accruing out of it.
- Without the cooperation of the people and their acceptance, the scheme will be difficult to implement.

Conclusion

The scheme will go a long way in achieving social justice and securing the lives of rural people by providing them definite legal assurance of their land ownership.

What is direct monetization of deficit? Do you think it could be a comprehensive solution for the government to prevent the looming financial crisis? Critically examine.(250 words)

Reference: [Indian Express](#)

Why this question:

The article highlights that with the economy stalled; there isn't enough money in the market for the government to borrow. It explains if it can ask the RBI to print more money and in such a case how does the process work, and what are the arguments against it.

Key demand of the question:

Telegram: <https://t.me/insightsIAStips>

Youtube: <https://www.youtube.com/channel/UCpocbcX9GEIwaile4HLjwA>

Facebook: <https://www.facebook.com/insightsonindia>



Explain the concept of direct monetization of deficit and present arguments for and against it.

Directive:

Critically examine – When asked to ‘Examine’, we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgment.

Structure of the answer:

Introduction:

Briefly define the idea of direct monetization of deficit in the preset context.

Body:

Explain first the current scenario, discuss as to what triggers a demand for direct monetization.

Discuss the scope and feasibility of “Direct” Monetization by the government for Deficit Financing as an option of the last resort. Explain if India has done this in the past. Highlight the issues involved.

Conclusion:

Conclude with what should be the way forward.

Introduction

The COVID-19 spread has meant that the Indian economy, which was already slowing down rapidly over the past couple of years, has completely stalled. Most estimates suggest that India’s GDP (gross domestic product) will barely grow in the current financial year - that is, if it does not contract as is likely to be the case in most major economies of the world.

With a nationwide lockdown, incomes have fallen and so have consumption levels. In other words, the demand for goods (say a pizza or a car) and services (say a haircut or a holiday) in the economy has gone down.

Body

Direct Monetization of Deficit

- It is a scenario where the government deals with the RBI directly, bypassing the financial system and asks it to print new currency in return for new bonds that the government gives to the RBI.
- Now, the government would have the cash to spend and alleviate the stress in the economy — via DBT to the poor or starting social and capital expenditure etc.
- In lieu of printing this cash, which is a liability for the RBI (recall that every currency note has the RBI Governor promising to pay the bearer the designated sum of rupees), it gets government bonds.
- Such bonds are an asset for the RBI since such bonds carry the government’s promise to pay back the designated sum at a specified date.
- And since the government is not expected to default, the RBI is sorted on its balance sheet even as the government can carry on rebooting the economy.

Why is Direct Monetization needed?

- **Lack of Demand:** The income levels have fallen as the economy has come to a stand still.



- This in turn has led to fall in the consumption levels. In other words, the demand for consumer goods and services in the economy has gone down.
- **Financing the fiscal deficit:** To reboot the economy, government has to come up with a stimulus package for various sector. And as the expenditure for fighting the pandemic was unforeseen in the budget, these packages will cause fiscal slippage and needs to be financed through various mechanisms. Direct monetization is one of the ways this can be done.
- **No credit available for borrowing:** For the government to borrow the money, the market should have it as savings. Data show that savings of domestic households have been faltering and are barely enough to fund the government's existing borrowing needs.
- **Receding foreign capital:** Foreign investors, too, have been pulling out and rushing to "safer" economies like the US, and are unwilling to lend in times of such uncertainty.

Feasibility of Direct monetization

- **Used in the past:** Until 1997, the RBI "automatically" monetized the government's deficit. In 1994, Manmohan Singh (former RBI Governor and then Finance Minister) and C Rangarajan, then RBI Governor, decided to end this facility by 1997.
- Recently C Rangarajan had said that monetization of the deficit was inevitable. Such a large increase in expenditure could not be managed without monetization of government debt.
- Countries like the UK have decided to tread this path. The Bank of England extended direct monetization facility to the UK government.
- Ideally, this tool provides an opportunity for the government to boost overall demand at the time when private demand has fallen, like it has today with enough caution.
- Good inflation is also needed. With a lockdown, the most immediate issue that policymakers have to contend with would be a dramatic fall in inflation.
 - That has deleterious impact on taxes, wages and ability of the government to take on more debt.
 - The risk of very low inflation (no-one is still talking about deflation in India yet) is as real as the one of high inflation.
 - "Printing money" ensures a backstop to ensure a certain amount of inflation in the economy – enabling the government to inflate away at least part of the new debt it is taking on to provide a safety net for the economy.

Issues with Direct Monetization

Direct monetization of deficit is a highly contested issue. Ex-RBI Governor Subbarao cautioned that India must remember that the balance of payments crisis in 1991, and a near-crisis in 2013, were, at heart, a result of extended fiscal profligacy.

- **Inflation:** Government expenditure using this new money boosts incomes and raises private demand in the economy.
 - With RBI printing a lot of money to buy G-Secs, money supply will shoot up and engender an inflationary spiral.



- Thus, it fuels inflation and if the government doesn't stop in time, more and more money floods the market and creates high inflation.
- **Data lag:** Inflation data is revealed with a lag, it is often too late before governments realise they have over-borrowed. Higher inflation and higher government debt provide grounds for macroeconomic instability
- Another oft-quoted risk of DM is **external vulnerability**. The rationale is that aggressive DM could devalue the currency, causing foreign investors to lose confidence and pull out money, putting the existing fiscal financing plan at risk.
- The other argument against direct monetizing is that governments are considered inefficient and corrupt in their spending choices — for example, **whom to bail out and to what extent**.

Conclusion

Consistency in policymaking is often touted as a virtue. But in extreme scenarios more than otherwise, consistency is merely a hobgoblin of mediocre minds. We need inspirations beyond mediocrity to kick-start India back into action. Monetization is perhaps the sharpest inspiration in the quiver today.

Major crops cropping patterns in various parts of the country, different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers Can the ongoing COVID-19 crisis be converted into an opportunity for reforming the agri-marketing system in the country? Give reasons in support of your arguments.(250 words)

Reference: [Indian Express](#)

Why this question:

The article authored by Ashok Gulati brings a different perspective of the effects of COVID-19 and in what way India can use it as an opportunity to reform its agri markets.

Key demand of the question:

Explain in what way the ongoing COVID-19 crisis can be converted into an opportunity for reforming the agri-marketing system in the country.

Directive:

Give reasons – Weigh up to what extent something is true. Persuade the reader of your argument by citing relevant research but also remember to point out any flaws and counter-arguments as well. Conclude by stating clearly how far you are in agreement with the original proposition.

Structure of the answer:

Introduction:

Briefly explain the current situation across the world.

Body:

To start with, explain the crisis that agriculture sector is facing owing to the COVID-19 effects. Explain what needs to be done to put the agri-system on an efficient path. Take hints from the article and list down the suggestions. Discuss the possible challenges involved while suggesting solutions for the same.

Conclusion:

Conclude with a futuristic approach for the Agri system of the country.

Introduction:



The significant disruption in supply chains as a result of the lockdown has led to farmers being stuck with a large amount of produce, especially of perishables like milk, fruits and vegetables, flowers and even poultry meat and eggs. Due to this glut, farm prices are collapsing, pushing farmers into destitution. Many of them are dumping milk and vegetables on the roads. With the procurement season for rabi crops having started, the mandi system will choke, and social distancing will go for a toss if immediate steps are not taken to organise procurement operations in an orderly manner. The wisdom lies in converting this crisis into an opportunity for reforming the agri-marketing system.

Body:

Hurdles for free movement and trade in agri produce due to lockdown:

- The supplies are plentiful but the shutting down of hotels, restaurants and catering businesses has led to demand destruction from institutional buyers.
- With abundant availability and demand now largely restricted to direct household consumption, there could be scope for panic buying and hoarding and people going without food.
- Inter-state movement restrictions and arbitrary actions by local authorities to enforce the lockdown — including closing down produce collection centres and warehouses of organized retailers.
- The links in the chain connecting farmers to consumers have broken down, in turn opening up arbitrage opportunities for unscrupulous speculators
- Agriculture is a 'state subject' and a large part of investment as well as regulatory progress is happening at the state level. The lack of coordination between the states at this time of crisis would be a debacle.
- **Limited reach of mandis:** Also, this procurement system has failed to cover the entire country evenly (back of the envelope calculation suggests that on an average, a farmer needs to travel 12 kms to reach the nearest mandi and more than 50 kms in NE India) while according to the recommendations by National Farmers Commission, availability of markets should be within a 5 km radius.
- **Inadequate infrastructure for storage:** The Planning Commission has recently estimated the gap between agri-warehousing supply and demand at 35 mn MT.
- **Lack of cold storage infrastructure:** India's current cold storage capacity at 25 MT is barely sufficient for 10% of fruit and vegetables produced in the country.

Measures to reform the agri-marketing system in country:

- Abolish/reframe the APMC Act and encourage direct buying of agri-produce from farmers/farmer producer organisations (FPOs). The companies, processors, organised retailers, exporters, consumer groups, that buy directly from FPOs need not pay any market fee as they do not avail the facilities of APMC yards.
- The warehouses can also be designated as markets, and the warehouse receipt system can be scaled up. The private sector should be encouraged to open mandis with modern infrastructure, capping commissions.
- Futures trading should be encouraged by allowing banking finance to hedge for commodity price risks.
- Promote e-NAM through proper assaying and grading the produce and setting up dispute settlement mechanism; rope in major logistics players for delivery of goods.
- Procurement must be staggered through coupons and incentives that give farmers an additional bonus for bringing produce to the market after May 10, or so.



- The amount provided under PM Kisan should be increased from Rs 6,000 to at least Rs 10,000 per farming family to partially compensate them for their losses.

Conclusion:

Post crisis, India must ask for fundamental reforms in the UN System, including the WHO, making it more transparent, competent, and accountable.

Policy action is the need of the hour to bridge the growing gap between irrigation potential creation and that actually utilized with path-breaking command area development. Comment. (250 words)

Reference: [Economic Times](#)

Introduction:

A recent ministry of earth sciences (MoES) report says that large parts of the country, including Uttar Pradesh, Bihar and West Bengal, have been witnessing “significantly decreasing trends” in rainfall patterns over the last three decades. It suggests pressing need to boost proactive policy to better manage water resources both at the Centre and in the states.

Body:

Present Water Crisis in India:

- Water levels in India’s major reservoirs have fallen to 21 per cent of the average of the last decade.
- Fifty-four per cent of the country’s groundwater is declining faster than it is being replenished.
- There is a crippling dependence on monsoon rains to replenish most of India’s key water sources— underground aquifers, lakes, rivers and reservoirs.
- Close to half the country, about 600 million people, face severe scarcity year after year.
- A June 2018 Niti Aayog report forecasts water demand will be twice the present supply and India could lose up to 6 per cent of its GDP.
- India’s water table is falling in most parts; there is fluoride, arsenic, mercury, even uranium in our groundwater.
- The groundwater and sand extraction from most river beds and basins has turned unsustainable.
- Tanks and ponds are encroached upon.
- Dug-wells and borewells are constructed with alarming impunity to slide deeper and deeper to suck water from greater depths.
- Water is being diverted from food-crops to cash-crops; livelihoods to lifestyles; rural to urban— mismanagement is a bigger reason for the drought.
- Water shortages are hurting India’s ability to produce power and 40% thermal power plants are in areas facing high water stress, a recent World Resources Institute report says
- Not only farmers, urban dwellers in cities and towns across India are also staring at a never seen before drinking water scarcity.
- Residents in the arid Thar desert of Rajasthan are spending Rs 2,500 to buy 2,500 litres of water which they share with their cattle.

Policy actions needed:

- The way ahead is to step-up recharge of aquifers and groundwater resources, even as we better allocate resources for surface irrigation systems and their maintenance.



- The rational pricing of water for irrigation brooks no delay. In parallel, the reasonable rational pricing of urban water supply is required to modernise and augment the network.
- Further, we need to shore up resources for water treatment and reuse. Note that only about 2% of urban centres have both sewerage systems and sewage treatment plants. This need to very substantially change going forward.
- The rejuvenation of rivers, as envisaged in the National Water Framework Bill, needs legislating. The destruction of catchment areas and river flood-plains have adversely affected river flows nationally, which needs reversing.
- We need concrete steps to reverse the build-up and consequent destruction of catchment areas and river flood-plains, to augment discharge channels and boost water flow to effectively prevent flooding, including in urban areas.

Conclusion:

There is a need to modernise the regulatory framework for accessing groundwater soon after massive expansion in mechanical pumping led to the realisation that recharge could not keep pace with use.

A special plan like the Marshall Plan of USA in 1948 is the need of the hour to address the agrarian distress amidst the ongoing crisis. Comment.(250 words)

Reference: [Indian Express](#)

Why this question:

The author talks about the agrarian reforms that the country needs in the current crisis hours and in what way we require Marshall plan like that of USA to address the situation.

Key demand of the question:

Explain the factors responsible for the ongoing agrarian crisis; discuss what needs to be done to address the situation.

Directive:

Comment– here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

Explain what Marshall plan of USA in 1948 was.

Body:

To start with, highlight the agrarian problems the country is facing currently. One can present the case study of eastern India as suggested in the article. List down the challenges in detail. Take hints from the article and explain what can be done and what lessons can be taken from the Marshall plan of USA,1948. Suggest solutions to address the scenario.

Conclusion:

Conclude with way forward.

Introduction

In the context of today's economy, under siege because of the coronavirus pandemic, what matters is not how big a country's GDP is or how fast it has been growing; the real challenge is how best and how quickly a country can bounce back to a growth rate of 7-8 per cent per annum.

Our survival is dependent on agriculture and a good harvest depends on quality seeds delivered to farmers by the seed sector, both public and private. As we are in the midst the coronavirus crisis, it is imperative that good seeds and other farm inputs reach farmers in time for the kharif season.

Body



State of Economy amidst Covid-19 pandemic

- The IMF's projections for GDP growth for this year seem to be either in the negative or below 2 per cent for almost all major countries of the G-20 group.
- India could do a little better compared to the other BRICS nations, but its growth will most likely be below 2 per cent.
- Many experts reckon that India could also go into negative GDP growth this year, if it does not reboot the economy properly and in time.
- The all India relief package of Rs 1.7 lakh crore announced by the central government earlier, which is about 0.8 per cent of the country's GDP, is too small to reboot the economy.
- The lockdown has choked off almost all economic activity. In urban areas, leading to the widespread loss of jobs and incomes for informal workers and the poor.
- Estimates by the Centre for Monitoring Indian Economy show that unemployment shot up from 8.4% in mid-March to 23% in the first week of April.
- In urban areas, unemployment soared to 30.9% as of April 5. The shutdown will cause untold misery for informal workers and the poor, who lead precarious lives facing hunger and malnutrition.

What was the Marshall Plan 1948?

- It was a call for a comprehensive program to rebuild Europe.
- Fanned by the fear of Communist expansion and the rapid deterioration of European economies in the **winter of 1946–1947**, Congress passed the Economic Cooperation Act in March 1948 and approved funding that would eventually **rise to over \$12 billion** for the rebuilding of Western Europe.
- The Marshall Plan generated a **resurgence of European industrialization** and brought extensive investment into the region.
- It was also **a stimulant to the U.S. economy** by establishing markets for American goods.
- The Marshall Plan also institutionalized and legitimized the concept of U.S. foreign aid programs, which have become an integral part of U.S. foreign policy.

Agrarian distress due to pandemic

- Preliminary reports show that the non-availability of migrant labor is interrupting harvesting activities, particularly in northwest India where wheat and pulses are being harvested.
- There are disruptions in supply chains because of transportation problems and other non-availability of demand for farm produce. Although farm produce were essential goods, smooth transport of these were not facilitated.
- Prices have declined for wheat, vegetables, and other crops, yet consumers are often paying more.
- Media reports show that the closure of hotels, restaurants, sweet shops, and tea shops during the lockdown is already depressing milk sales.
- Meanwhile, poultry farmers have been badly hit due to misinformation, particularly on social media, that chicken are the carriers of COVID-19.

Need for stimulant to India to fight agrarian distress

The government has correctly issued lockdown guidelines that exempt farm operations and supply chains. But implementation problems leading to labor shortages and falling prices should be rectified.



- Keeping supply chains functioning well is crucial to food security. It should be noted that 2 to 3 million deaths in the Bengal famine of 1943 were due to food supply disruptions—not a lack of food availability.
- Farm populations must be protected from the coronavirus to the extent possible by testing and practicing social distancing.
- Farmers must have continued access to markets. This can be a mix of private markets and government procurement.
- Small poultry and dairy farmers need more targeted help, as their pandemic-related input supply and market-access problems are urgent.
- Farmers and agricultural workers should be included in the government's assistance package and any social protection programs addressing the crisis.
- As lockdown measures have increased, demand has risen for home delivery of groceries and E-commerce. This trend should be encouraged and promoted.
- The government should promote trade by avoiding export bans and import restrictions.

Conclusion

Hence besides chalking new plans and announcements, this is the right time to take pragmatic steps to address the fault lines in India's agricultural and farming sector, to bring rural prosperity and dispel agrarian distress.

Issues related to direct and indirect farm subsidies and minimum support prices; Public Distribution System- objectives, functioning, limitations, revamping; issues of buffer stocks and food security; Technology missions; economics of animal-rearing.

Do you agree with the view that the covid-19 pandemic presents a window to second white revolution for India? Give reasons in support of your arguments.(250 words)

Reference: [Financial Express](#)

Why this question:

The Author explains in detail the possible opportunities that the current pandemic brings with it with respect to the dairy farming in the country.

Key demand of the question:

Explain the prospects for second white revolution brought out by the COVID-19 pandemic to India.

Directive:

Give Reasons – Weigh up to what extent something is true. Persuade the reader of your argument by citing relevant research but also remember to point out any flaws and counter-arguments as well. Conclude by stating clearly how far you are in agreement with the original proposition.

Structure of the answer:

Introduction:

In short explain the effect of the pandemic in general on the agriculture sector and otherwise.

Body:

The body of the answer must explain How COVID-19 could benefit the dairy industry. Take hints from the article and present points in favour of your argument like – Covid-19 pandemic has thrown up the real possibility for our dairy industry to benefit as large sections of consumers may shift from meat-based to dairy-based protein. Covid-19 crisis has witnessed reverse migration of labour force from urban to rural areas leading to social disruptions. On the positive side, we can look at this as an



opportunity; these workers can be encouraged and incentivized to join their family agriculture/dairy farms etc.

Conclusion:

Conclude on a positive note that it's the right time to encash the opportunity and help and aid our farmers with a new ray of hope.

Introduction:

Dairy industry has proved to be more resilient than many other sectors in terms of the extent of supply chain disruptions during the COVID-19 lockdown. Millions of our animal-owning households, the majority being smallholders, particularly those connected to producer-centric institutions continued to milk their cows and buffaloes, and sell the surplus to the village milk collection centres. Milk was then pooled, cooled, and transported to processing centres where it was pasteurised, packaged and dispatched to thousands of marketing outlets, finally finding its way to millions of homes.

Body:

Sustenance of dairy industry during CoVID-19:

- To enhance the marketing of milk and milk products, many dairy organisations, initiated home delivery of milk and milk products through mobile carts, vans, e-commerce, etc.
- All these measures helped stabilise milk sales, opening up opportunities to use e-commerce.
- Many smart and progressive dairy farmers converted their surplus milk into khoa, paneer, ghee, etc, and sold it to the neighbourhood markets through informal channels.
- The US is contemplating to purchase milk, convert it into commodities which could be used as international humanitarian aid.
- All these measures helped sustain dairy industry.
-

Potential of White Revolution 2.0:

- Post-liberalisation and Milk and Milk Products Order (2002) was abolished, dairy businesses observed a radical shift toward a strategic product diversification towards functional and traceable foods like nutrition-based health drinks, packaged milk products (such as paneer), and frozen/probiotic products and so on.
- Market structure, conduct, and performance has dramatically changed post 2000s. Besides the established cooperative federations like Amul, other state cooperative federations and multinationals (namely, Nestle, Danon, and Lactalis) are aggressively harnessing the untapped business potential.
- White revolution 2.0 can strengthen the scope of vertical integration between cattle feed industries, dairy machinery firms, producer cooperatives unions, state marketing federations, advertising and marketing firms, logistics and distribution agencies.
- The dairy industry in India is unique. With six lakh villages housing about 90 crore people, dairying is not just a large economic activity but also an integral part of our social and cultural heritage
- Can help small farmers to reduce dependence on crop sales



- Can increase source of income of farmers in low yielding areas like Marathwada, Bundelkhand etc
- India is surrounded by countries and regions that are milk-deficient, such as the Middle East, South Asia and Southeast Asia.
- There is ample scope for export of value-added milk products to Bangladesh, China, Singapore, Thailand, Malaysia, Philippines, Japan, the UAE, Oman and other gulf countries, all of which are located close to India.
- At present, the population of South Asia alone is growing at 1.3 per cent a year; it is likely to be 2.2 billion by 2050. This presents an opportunity for India's dairy industry

Challenges to White Revolution 2.0:

- The Indian cows and buffaloes are generally low yielding and non-descript because of the lack of healthy cattle-feed and fodder, tropical heat and diseases.
- Despite lack of water and gradually declining arable land, dairy farming is on the rise.
- Free trade agreements, or FTAs, for instance, will allow EU government-subsidized products to be imported from Europe with little entry barriers. This will pose a big challenge to cow-farmers.
- Due to unhygienic production, handling conditions and high temperatures, the quality of milk is adversely affected.
- Because of inadequate marketing facilities, most of the marketable surplus is sold in the form of ghee which is the least remunerative of all milk products.

Measures needed:

- India may consider reducing GST on ghee and milk fat, from 12% to 5% to bring it at par with the GST rate for SMP. This has been a long-standing demand of the dairy industry and will ultimately benefit milk producers, increase rural incomes, spur demand and hasten economic recovery.
- Increase in the market share depends on how dairy firms' capabilities and their resources are utilised given the opportunities and threats emanating from emerging markets economies.
- Contract/corporate dairying and emerging global dairy trade are required to rope in dairy supply chains stakeholders in order to expand their outreach and "on-the-go" product positioning into the target segment.
- Digital technology-enabled dairy firms need to identify their compatible partners and competitors for co-creation through product-process innovation via relationship/value-based marketing.
- Freshness in milk, and convenience to store milk or milk products can be a technology innovation brought in by large dairy firms in association start-ups.
 - Education and Training at Panchayat level for small and medium size farmers
 - Subsidizing cattle production and encouraging cattle markets
 - Facility of logistics for produced milk
 - Improved Veterinary facility specially in artificial insemination of cattle



- Encouraging private sector firm to procure dairy produced at rural level
- Low interest loans for small and medium scale farmers for cattle purchase
- Encouraging rural women to take up animal husbandry
- Insurance of cattle against diseases like Anthrax, Foot and Mouth, Peste des Ruminantes, etc.
- Nurture dairy entrepreneurs through effective training of youth at the village level coupled with dedicated leadership and professional management of farmers' institutions.
- Agricultural practices, sanitation, quality of drinking water & fodder, type and quality of pipelines - all of these need to be aligned to the goal of healthy milk

Conclusion:

Covid-19 pandemic has thrown up the real possibility for our dairy industry to benefit as large sections of consumers may shift from meat-based to dairy-based protein. Covid-19 has made people more aware of the need to adopt a healthy diet. Covid-19 crisis has witnessed reverse migration of labour force from urban to rural areas leading to social disruptions. On the positive side, we can look at this as an opportunity; these workers can be encouraged and incentivized to join their family agriculture/dairy farms.

Food processing and related industries in India- scope and significance, location, upstream and downstream requirements, supply chain management.

“Supply chain challenges in a situation of a long nationwide lockdown are immense, and complex.”, discuss the possible role that e-commerce can play in such a situation.(250 words)

Reference: [Financial Express](#)

Why this question:

The question is based on the Supply chain challenges that the country is witnessing amidst the lockdown.

Key demand of the question:

The answer must discuss the role of e-commerce in the present times of lockdown and the prospects that it brings with it to handle and manage the supply chain constraints.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly define what constitute supply chain, and what are the constraints being witnessed with respect to it in the current times.

Body:

Explain that – Supply chain challenges in a situation of a long nationwide lockdown are immense, and complex. While maintaining the flow of essential supplies, it is equally important that people



across the country have access to them, preferably while remaining within their homes. E-commerce can play a big role in this regard, and keep the supply chain efficiently functioning. Take hints from the article and list down the positives.

Conclusion:

Conclude that with suitable logistical linkages and state support, e-commerce can help ensure maintenance of supply chains and facilitating access to essential goods.

Introduction

Unprecedented circumstances are upon us. As covid-19 mutates across the sphere, with governments unsure and citizens fretting, there is little doubt over the scale of the challenge that lies ahead. With a worldwide recession looming, the pandemic will test our collective resilience.

At this time, **supply chain challenges** in a situation of a long nationwide lockdown are immense, and complex. While maintaining the flow of essential supplies, it is equally important that people across the country have access to them, preferably while remaining within their homes. The elderly, and those vulnerable—persons having diseases like diabetes, heart problems—have to be kept securely inside the “cocoon” of their homes to ensure social distancing, while ensuring their needs, including medicines, are being met. Delivery right to their homes, or at their doorsteps may be critical during the pandemic.

Body

Supply Chain Management

- Supply chain management is the **management of the flow of goods and services** and includes all processes that **transform raw materials into final products**.
- It involves the active streamlining of a business’s supply-side activities to maximize customer value and gain a **competitive advantage in the marketplace**.
- SCM represents an effort by suppliers to develop and implement supply chains that are as efficient and economical as possible.
- Supply chains cover everything **from production to product development** to the information systems needed to direct these undertakings.
- Maintenance of a supply chain is a complex process, and can be interrupted, or clogged in many ways—manufacturing shutdowns, transport restrictions, speculative behaviour and panic buying, issues in last-mile delivery, etc.
- During the crisis, this becomes even more important with regard to **essential products**.

Role of E-commerce in handling supply chain challenges

E-commerce can play a big role in this regard, and keep the supply chain efficiently functioning.

- With suitable logistical linkages and clarity of respective roles, and support from government agencies, it can **facilitate coordination between local FMCG enterprises and traditional kirana outlets**.
- E-commerce platform can dynamically connect centers of supply and demand with modern tools of technology. **Eg : In case of everyday essentials such as dairy and groceries, Big-basket has emerged a huge player in providing linkage between supplier and consumer.**
- **Employment Sustenance:** It can sustain and maintain, if not create, jobs at the same time. It is reported that Flipkart, India’s largest e-commerce company, is already in discussion with several kirana aggregators to start such pilots.



- **Ensuring social distancing:** E-com delivery could be scaled up for **doorstep delivery in affected areas**, and complement their mutual efforts. In hotspots and red zones of the country, door delivery of services can flatten the curve by avoiding people to step out even for essentials.
- **Delivering Food:** An online platform like Zomato is being used to connect with brick-and-mortar restaurants to deliver food. This way, it is not only helping local businesses survive, but also providing a link for food to those who may not be in a position to cook.
- **Past Precedence:** It was the SARS virus of 2003 that impelled the enormous growth of e-commerce in China. The emergence of Alibaba, JD.com, Taobao, Tmall, etc, witnessed explosive growth of e-commerce, on-demand, ultramodern delivery, as well as logistics infrastructure which overtook global trade and commerce.
- **Employment and empowerment:** These had an overall positive effect by generating millions of jobs (estimated 30 million in China) and sources of livelihood for micro-entrepreneurs who found a way to market. It also had a **significant impact for women**, whose movement is sometimes particularly constrained by cultural circumstances.

Way-forward

Among the areas for improvement are:

- **End-to-end stock visibility:** Organizations need to know what they have in their warehouses, in store, what is selling at what time, and where, so they can quickly react to changing conditions and customer needs. Having unified inventory visibility across channels in a single database is crucial. This not only enables organizations to make rapid and agile replenishment and stock transfers — it also means they avoid overspend on inventory.
- **Complex supplier monitoring:** Understanding how suppliers' and their subcontractors' locations are spread out globally, and knowing which products pass through those sites, is critical to manage any disruptions. This enables organizations to quickly predict how the supply chain will be impacted over the coming weeks, giving them time to immediately execute mitigation strategies.
- **Analytics and artificial intelligence:** Deploying tools infused with strong analytics capabilities will enable organizations to get ahead of demand, respond to changing market conditions, improve demand forecast accuracy, and suggest better allocation and replenishment strategies. By combining internal and external data, supported by AI, applications can work on scenario analysis and "what-if" conditions, creating complex models to plot the best course of action.
- **Process automation:** Workflow automation leads to even faster and more agile replenishment processes. For example, systems that provide low-stock alerts can automatically order goods for a particular store quickly and cost-effectively from the right location.

Conclusion

There will be several innovations in online learning, pharmaceuticals, medical research, and various existing and new applications of e-commerce. It was the Second World War that gave rise to the big economic powers. This war with coronavirus, which has thrown a new gauntlet, can be a huge opportunity for us. There is no doubt we shall rise up to it as in the past, during earlier wars, and the brainpower of Indian millennials, which has been demonstrated around the world, will bring out new solutions to the various current problems.



Discuss the possible role that Geographical indication (GI) tags play in Rural Development of the country.(250 words)

Reference: [The Hindu](#)

Why this question:

Bangalore blue grape is a variety of fox grape grown in districts around Bengaluru, Bengaluru rural, Chikkaballapur and Kolar districts. It has been given the Geographical Indication (GI) status in 2013. Almost all the growers of Bangalore Blue grapes are now in dire straits as their crops have started drying up with no buyers due to the COVID-19 lockdown.

Key demand of the question:

Explain the role of Geographical indication (GI) tags play in Rural Development of the country.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly define what GI is.

Body:

A GI or Geographical Indication is a name or a sign given to certain products that relate to a specific geographical location or origins like a region, town or country. Using Geographical Indications may be regarded as a certification that the particular product is produced as per traditional methods, has certain specific qualities, or has a particular reputation because of its geographical origin. List down the positives of the GI. Discuss the role of GI in Rural Development – Geographical indications are mostly traditional products, produced by rural communities over generations that have gained prominence on the markets for their precise qualities. Some benefit are – The supply chain is structured around a common product reputation Increased and stabilized prices for the GI product Distributed through all the levels of the supply chain adds value Natural resources can be preserved on which the product is based Preservation of traditions and traditional expertise.

Conclusion:

Conclude with way forward.

Introduction:

A geographical indication (GI) is a name or sign used on products which corresponds to a specific geographical location or origin. It acts as a certification that the product possesses certain qualities, is made according to traditional methods, or enjoys a certain reputation.

Since the COVID-19 lockdown came into force, coupled with several other issues, meant there are no takers for many GI tag crops like Bangalore Blue variety of Grapes, Dilkush variety of seeded green grapes and many more GI tag products.

Body:

Laws governing the GI tag:

- Under Paris Convention for the Protection of Industrial Property, GIs are covered as an element of IPRs.
- GI is governed by WTO's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).
- In India, GI tag is governed by Geographical Indications of Goods (Registration and Protection Act), 1999.



- This Act is administered by Controller General of Patents, Designs and Trade Marks, who is also Registrar of Geographical Indications.

Role that Geographical indication (GI) tags play in Rural Development of the country:

- GI tag helps the producers to differentiate their products from competing products in the market.
- It enables the producers to build a reputation and goodwill around their products, which often fetch a premium price.
- The products help in export earning, promotion of tourism, cultural heritage and national identity.
- For example, Kanjeevaram silk sarees and Pochampally Ikat contribute to exports and popularity.
- GIs have great potential to play a major role in trade between countries.
- Legal protection to GIs protect livelihoods and encourage employment generation.
- Owing to the premium prices that many GIs command today, there is a possibility of preserving many traditional skills.
- Benefit to the rural economy by improving the incomes of farmers or non-farmers
- GI allows genuine producers to capture the market and creates entry barriers for fakes

Concerns / Challenges:

- The special treatment to wines and spirits in TRIPS Agreement appears to be developed country-centric. Developing countries, including India, seek the same higher level of protection for all GIs as was given under TRIPS for wines and spirits.
- The battle for GI tag between states. For instance, the previous row between West Bengal and Odisha over the ownership of Rasogolla
- False use of geographical indications by unauthorized parties is detrimental to consumers and legitimate producers.
- Cheap Power loom saris are sold as reputed Banarasi handloom saris, harming both the producers and consumers
- Such unfair business practices result in loss of revenue for the genuine right-holders of the GI and also misleads consumers.
- Protection of GI has, over the years, emerged as one of the most contentious IPR issues.

Way forward:

- The benefits of GI tag are realised only when these products are effectively marketed and protected against illegal copying.
- Effective marketing and protection requires quality assurance, brand creation, post-sale consumer feedback and support, prosecuting unauthorised copiers, etc.
- For internationally recognised products like Darjeeling tea, international protection is of crucial importance.
- Legal protection to GIs also extends to protection of traditional knowledge and traditional cultural expression contained in the products.
- Hence Intellectual Property is a power tool for economic development and wealth creation particularly in the developing world.



- GIs have the potential to be our growth engine. Policy-makers must pay a heed to this and give Indian GI products their true reward.

Give an account of distribution of sugar industry in India. Also, highlight the problems plaguing the sugar sector in the contemporary times.(250 words)

Reference: [Indian Express](#)

Why this question:

The article brings to us insights in the sudden dip of sugar prices besides the price crash in oil that the world is witnessing.

Key demand of the question:

The student must account for distribution of sugar industry in India in detail and highlight the problems plaguing the sugar sector in the contemporary times.

Directive:

Account – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In short explain the importance and relevance of sugar industry in India owing to the agricultural nature of the economy.

Body:

India is the world's largest producer of sugarcane and cane sugar and contributes about 8% of the total sugar production in the world. At present, this is the second largest agro-based industry of India. Factors responsible for distribution of sugar industry use a map of India to depict the distribution and add value to your answer. Discuss the problems faced by the sugar industry in India, present the factors of the contemporary times too such as the effect of oil price crash amidst the COVID-19 fear.

Conclusion:

Conclude by suggesting solutions as to what needs to be done to overcome these challenges.

Introduction:

India is the **second largest producer of sugar** (17.1%) in the world after Brazil. Within India, **Uttar Pradesh (36.1%), Maharashtra (34.3%) and Karnataka (11.7%)** are the three largest producers. Sugar production in India has increased from 24.8 million tonnes in 2015-16 to 32.25 million tonnes in 2017-18 and is expected to touch 35.5 million tonnes in 2018-19. But the domestic demand remains stagnant at around 25 million tonnes. More than 50 million farmers engaging in sugarcane cultivation in over four million hectares of land (with over five lakh employees in sugar mills). Increasing mismatch has further depressed sugar prices, resulting in increasing sugar arrears.

Body:

Distribution of sugar industry in India:



A high yield sugarcane variety, India witnessed bumper harvests in the last 3 seasons, but sugar prices have fallen and sugarcane farmers have been incurring heavy losses.

The issues faced by sugarcane farmers in the country are

- **Coronavirus pandemic:**
 - The closure of restaurants, weddings and other social functions not taking place, and people avoiding ice-creams and sweetened cold beverages that might cause throat infections.
 - The impact of coronavirus-induced lockdowns on out-of-home consumption and institutional (as opposed to direct household) demand for sugar is obvious.
- **Multiple Prices:**
 - Fixation of **Fair Remunerative Price** is another bone of contention between the Centre and sugar mills. The **Centre decides FRP annually** and the **states** can hike it by issuing a **state advisory price** or SAP. But **mills want the price of sugarcane to be linked to the price of sugar**.
 - The higher FRP and SAP poses a grave threat to groundwater levels, the depletion of which is already a grim ecological catastrophe in India.
- **Glut in Production:**
 - New seed variety, **CO-0238**, the country has witnessed bumper harvests in the last three seasons, particularly in 2017-18.



- But sugar prices have fallen because of the demand-supply mismatch and sugarcane farmers have been incurring heavy losses.
- 36 MMT of sugar, against consumption of 26 MMT, is being produced since 2018, which involves high risks like high storage costs and spoilage.
- **Unpaid dues to farmers:**
 - The sugar production by mills also went up across the country, due to which the sugar prices plummeted so much that the sugar mills in India cumulatively owe Rs 22,000 crore to farmers for cane supplied in 2017-18.
- **Mismanaged policy:**
 - In December 2009, the government announced its National Policy on Biofuels, which called for blending petrol with 5 per cent ethanol.
 - In 2015, the target was raised to 10 per cent. But this was never achieved. Brazil, the world's biggest sugarcane producer, depends on ethanol, and not sugar, as main revenue source from sugarcane and blends 27 per cent ethanol with petrol.
 - There are several impediments to the solutions proposed by the government which include sugar subsidies, exporting excess production of sugar, production of ethanol from sugarcane to use in cars and buying excess sugar and hoarding it as buffer stock
- **Delay in payment of late fees:**
 - After the crushing season is over, the mill is supposed to transfer the money to farmers' bank accounts within 14 days, failing which it should pay 15 per cent interest annually on the amount, says the Union government's Sugarcane Control Order of 1966. But mills rarely pay on time.
- **Infrastructure issues:**
 - Sugarcane is a **weight-losing crop** which needs to be crushed at the earliest from time of harvest.
 - The **poor connectivity, lack of transportation facilities and distant sugar-mills** cause huge losses to farmers due to decline in quality of sugarcane.
- **Miscalculations:**
 - In October 2016, Uttar Pradesh announced the average sugarcane yield estimates for every district for 2017-18. These estimates are the basis on which the mills buy sugarcane. Farmers say that these estimates have turned out to be much less than the actual yield.

Way forward:

- **Rangarajan committee (2012)** proposed **decontrol of sugar industry and linking sugarcane prices with market price of sugar to account for this structural imbalance.**
- Based on the report, Commission for Agricultural Costs and Prices (CACP) recommended a hybrid approach of fixing sugarcane prices, which involved fair and remunerative price (FRP) or floor price and revenue sharing formula (RSF). Under this approach farmers' revenue from sugarcane would be higher if the price of sugar and by-products is high.



- This is similar to many other committees formed by the government to recommend the sugar industry decontrol. Committees under **Mahajan (1998), Tuteja (2004), Thorat (2009) and Nandakumar (2010) had similar recommendations.**
- Ease the market control of government on export and import. The move is to help India (17% of world production) to enable its exports (only 4% of world export), but leaving it all to the market is risky.
- Do away with minimum distance between mills to enable competition.
- The new **national policy on biofuels 2018**, expands the scope of raw material for ethanol production by allowing use of Sugarcane Juice.
- Policy modifications to increase the ethanol blending vis-à-vis the foreign countries like Australia which has 85% blending. Better prices for ethanol can also help in export of the same.
- **To diversify crops and ensure that sugarcane production falls.** This requires long-term investment, and the government will have to encourage farmers to cultivate crops like pulses and oilseeds.
- **Better irrigation techniques** to reduce the water usage.
- **Reducing the information asymmetry** to improve farmer's knowledge about the possible output in a year using BigData technique.

Case-study: In 2012, the sugarcane-water stories of farmers in Barwani, Madhya Pradesh, and Rajgoli, Maharashtra, were replete with sour details when International Finance Corporation (IFC) of the World Bank Group intervened along with Olam International and Solidaridad. The collaboration, called 'Madhu Shree', recognised water as a key risk-factor, because in 2015, it was rated as the highest global risk by the World Economic Forum, considering its contribution to three of the top five global risks.

Effects of liberalization on the economy, changes in industrial policy and their effects on industrial growth.

Can we integrate "Assemble in India for the world" into "Make in India" to achieve an unprecedented opportunity to chart a China-like, labour-intensive, export trajectory that was witnessed till recent times? Evaluate. (250 words)

Reference: [Money Control](#)

Why this question:

The question is based on the observations pointed out by this year's economic survey.

Key demand of the question:

Explain the advantages and possibility of integrating "Assemble in India for the world" into "Make in India" to achieve an unprecedented opportunity to chart a China-like, labour-intensive, export trajectory that was witnessed till recent times.

Directive:

Evaluate – When you are asked to evaluate, you have to pass a sound judgement about the truth of the given statement in the question or the topic based on evidences. You have to appraise the worth of the statement in question. There is scope for forming a personal opinion here.

Structure of the answer:

Introduction:

On the much debated job creation issue, the Survey highlights that India can look at creating employment by emerging as a major hub for final assembly in a range of products.

Body:



To start with, explain that the Survey says India has unprecedented opportunity to chart a China-like, labour-intensive, export trajectory by integrating “Assemble in India for the world” into Make in India. Discuss the observations made by survey. Give your opinion about the way ahead.

Conclusion:

Conclude on a positive note and suggest at the potential that Indian markets have.

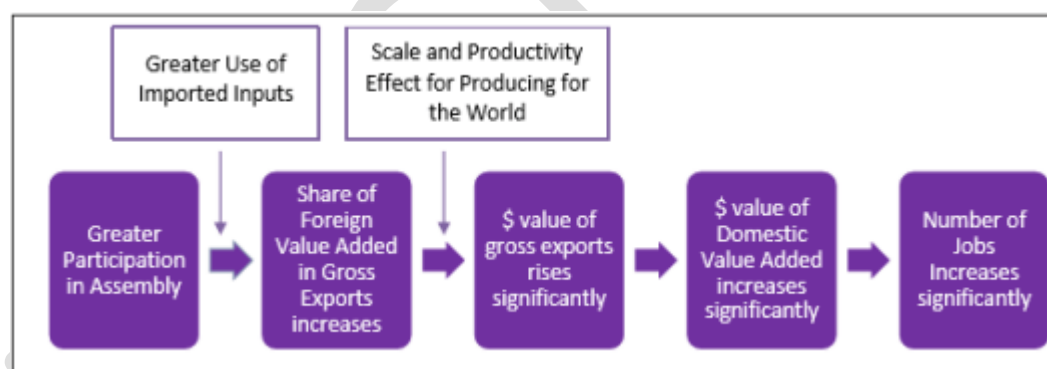
Introduction:

The survey finds that by integrating “Assemble in India for the world” into Make in India, India can create 4 crore well-paid jobs by 2025 and 8 crore by 2030. Our trade policy must be an enabler because growth in exports provides a much-needed pathway for job creation in India. Exports of network products, which is expected to equal \$7 trillion worldwide in 2025, can contribute a quarter of the increase in value-added for the \$5 trillion economy by 2025. Contrary to recent fears, careful analysis that controls for all confounding factors shows that India has gained from trade agreements: a 0.7 per cent increase per year in trade surplus with partner countries for manufactured products and 2.3 per cent per year for total merchandise.

Body:

Challenges for ‘Assemble in India’:

- lack of diversification in our export basket.
- Lack of specialization and state of economies of scale.
- Stringent labour laws.
- Lack of ease of doing business like credit facilities, land, electricity etc.
- Unskilled labour.
- In contrast to India, export growth of capital-intensive products from China has been driven by its high level of participation in GVCs (global value chains) within these industries



Measures needed:

- India needs to specialize more in the areas of its comparative advantage and achieve significant quantity expansion.
- India must replace China as the major exporter of capital-intensive products.
- India has gained a competitive advantage in relatively low and middle income country markets driven by the nature of its specialization. This must be replicated in the richer economies.
- India can benefit significantly from utilizing the potential opportunities from greater trade with high income markets. However, this requires a reorientation of our trade specialization towards labour-intensive product lines.
- The above could be achieved by selective focus on traditional labour-intensive sectors such as textiles, especially man-made fibres, and increased participation in GVCs.



- India can look at creating employment in two groups of industries, given our comparative advantage in labour-intensive activities and the imperative of creating employment for a growing labour force.

Way forward:

- First, there exists a significant unexploited export potential in India's traditional unskilled labour-intensive industries such as textiles, clothing, footwear and toys.
- Second, India has huge potential to emerge as a major hub for final assembly in a range of products, referred to as "network products" (NP).
- The Global Value Chains (GVCs) in these industries are controlled by leading MNEs such as Apple, Samsung, Sony etc. within "producer driven" networks. In general, these products are not produced from start to finish within a given country; instead, countries specialize in particular tasks or stages of the good's production sequence.
- Focus on "Network Products": A group of Industries, where production processes are globally fragmented and controlled by leading Multi-National Enterprises (MNEs) within their "producer driven" global production networks. Examples of network products include computers, electronic and electrical equipment, telecommunication equipment, road vehicles etc. For
- Laser-like focus must be placed on enabling assembling operations at mammoth scale in network products. As an India that harbours misplaced insecurity on the trade front is unlikely to grab this opportunity, our trade policy must be an enabler.
- policy measures should focus on reducing input tariffs, implementation of key factor market reforms, providing an enabling environment for the entry of lead firms into the country and reducing the service link costs.

Do you think Jio-Facebook alliance can reshape the retail landscape in India? Analyse the opportunities and obstructions that may arise from such a deal for India.(250 words)

Reference: [Indian Express](#)

Why this question:

The question is amidst the recent Jio-Facebook alliance and study of its impact.

Key demand of the question:

Explain the effect of Jio-Facebook alliance on the retail landscape in India; discuss the possible advantages and disadvantages of the deal.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Explain the context of the question.

Body:

To start with, discuss the impact of the alliance first. Explain how the deal brings new opportunities for businesses of all sizes, and especially for the millions of small businesses across the country. Then move on to highlight the concerns associated. Discuss solutions that can address such concerns.

Conclusion:

Put forward a futuristic conclusion.

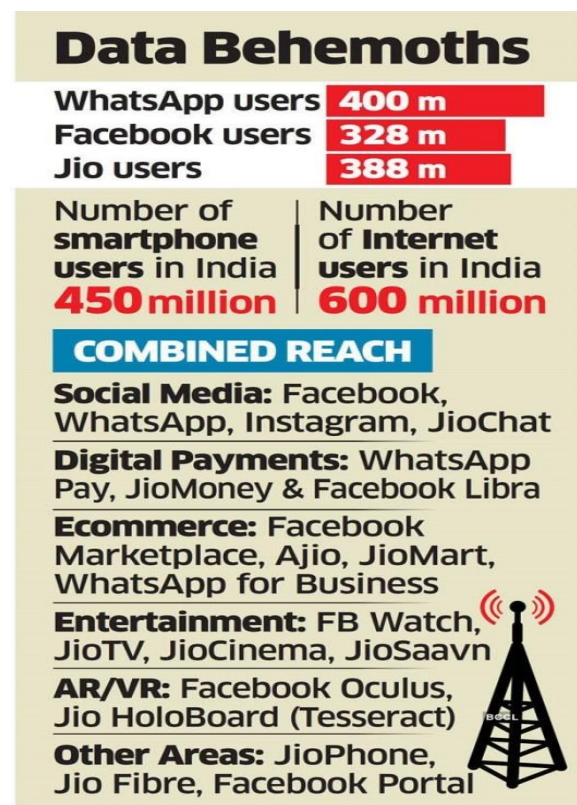
Introduction:

Reliance Industries and Facebook announced that the California-based social media giant will acquire a 9.99 per cent stake in Jio Platforms limited, the holding company of Reliance Jio, for \$5.7



billion (Rs 43,574 crore). The deal which pegs the value of Jio platforms at Rs 4.62 lakh crore will help the Reliance group to reduce its debt burden, something the oil-to-telecom conglomerate has been actively working towards. The two companies expect to benefit from the synergies created by partnerships between the various arms of Reliance — retail and telecom — and Facebook's platforms such as WhatsApp.

Body:



Implications on retail landscape in India:

Benefiting Millions of Small Businesses:

- At its core, Reliance's idea is to create an ecosystem, by enabling customers to access the local Kirana stores using WhatsApp, combining both offline and online retail.
- This deal will support the Reliance group's ambitions for JioMart, an internet venture that aims to grant millions of small sellers across India access to a mass market of customers online.
- This ability to connect millions of local businesses with end consumers, and provide them with a seamless online transaction experience could radically alter the country's retail landscape.

Boosting India's Internet Scenario:

- This strategic partnership with India's one of the largest telecom operators will be key to India's future technological plays, particularly in virtual reality (VR) and Internet of Things (IoT), and 5G network.
- India's internet framework may get a technological boost, and that too reaching citizens in a short time.
- This deal may help in deepening financial inclusion as 400 million users of WhatsApp, may leverage Facebook's Whatsapp pay-UPI platform.



- Also, because of Facebook's Libra cryptocurrency service, this deal could be a step further for experimenting crypto-based payments and blockchain technology on a large scale in India.

Opportunities:

- The deal, it said, will allow both Facebook and Jio to monetise their digital platforms, engage customers online, and provide direct connectivity between users and merchants.
- Usage of digital platforms is likely to grow significantly in the medium term amid severe disruptions caused by lockdowns and social distancing measures.
- A scaling up of this model will also provide opportunities for cross-selling — significantly increasing the upside for firms and increasing the valuation of its retail arms.
- At present, though, the reach of WhatsApp Pay is limited — just over a million Indians are reported to currently have access to the pay feature.
- But this sort of model is popular in other Asian economies such as China, Korea and Japan where apps like WeChat have a wide range of product offerings, which induces consumer stickiness.
- The deal may also open up the entire WhatsApp consumer base — the near ubiquitous chatting app has a consumer base of around 400 million — to Reliance, including those on other telecom platforms such as Airtel and Vodafone.

Challenges:

- For one, given the dominant market position of the players, concerns over the market structure and its implications for consumer welfare are bound to arise.
- Second, the tie-up also raises questions on net neutrality with the possibility of preferential treatment being granted.
- Facebook's Free Basics platform was shut down by the Telecom Regulatory Authority of India (TRAI) due to net neutrality concerns.
- In 2015, it experimented with Free Basics, which provided free access to basic Internet services as a partnership with service providers.
- Also, violation of principles of net neutrality is difficult to prove, owing to technical issues like low bandwidth, the difference in network capacity in different areas.
- Third, given the data privacy issues highlighted in the past by the Cambridge Analytica episode, for instance, there are apprehensions over the enormous amounts of data that will be collected by these entities, especially when India still does not have a personal data protection law.
- Data is also referred to by many experts as the new oil or new currency of the 21st century.
- This is due to the fact that the vast quantities of data generated by users of online services can be processed into valuable information for commercial and strategic gains by technological giants like Amazon, Google etc.

Conclusion:

This mega-deal will have major implications on India's retail and internet landscape. However, in the context, the role of regulatory bodies such as the Competition Commission of India and Telecom Regulatory Authority of India assumes much importance. The nature of such regulation will decide the overall fate of India's market, whether it will turn into digital Sarvodaya or will deepen the digital divide.



Science and Technology- developments and their applications and effects in everyday life; Achievements of Indians in science & technology; indigenization of technology and developing new technology.

What is clean hydrogen? Discuss the potential that clean hydrogen industry holds in ensuring cuts in the global greenhouse gas emissions.(250 words)

Reference: [Down To Earth](#)

Why this question:

The article talks about the potential that the clean hydrogen industry holds for doing away with global greenhouse gas emissions.

Key demand of the question:

Explain what clean hydrogen is; discuss its significance in curbing the global greenhouse emissions.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly define what clean hydrogen is. Hydrogen is a clean fuel that, when consumed in a fuel cell, produces only water. Hydrogen can be produced from a variety of domestic resources, such as natural gas, nuclear power, biomass, and renewable power like solar and wind.

Body:

Highlight the facts pointed out by 'Hydrogen Economy Outlook'. The report suggested that renewable hydrogen could be produced for \$0.8 to 1.6/kg in most parts of the world before 2050. Explain the fact that Hydrogen has the potential to power a clean economy. In the years ahead, it will be possible to produce it at low cost using wind and solar power, to store it underground for months, and then pipe it on demand to power everything from ships to steel mills. Take hints from the article and explain the significance.

Conclusion:

Conclude with significance of the clean hydrogen.

Introduction:

Hydrogen is a clean fuel. It is an energy carrier that can be used for a broad range of applications. Also it could serve as a possible substitute to liquid and fossil fuels. Its physical properties could be stated as following. At standard temperature and pressure, hydrogen is a nontoxic, nonmetallic, odorless, tasteless, colorless, and highly combustible diatomic gas with the molecular formula H₂. Widespread adoption of clean hydrogen can cut global greenhouse gas emissions by up to 34 per cent in fossil fuel-dependent sectors by 2050 — and at a manageable cost — according to a new study by research firm BloombergNEF (BNEF).

Body:

potential of clean hydrogen industry in reducing greenhouse gas emissions:

- Hydrogen as a fuel has long been touted as an almost magical solution to air pollution crisis. The only by-product or emission that results from the usage of hydrogen fuel is water — making the fuel 100 per cent clean.



- Hydrogen is considered an alternative fuel. It is due to its ability to power fuel cells in zero-emission electric vehicles, its potential for domestic production, and the fuel cell's potential for high efficiency.
- In fact, a fuel cell coupled with an electric motor is two to three times more efficient than an internal combustion engine running on gasoline.
- Hydrogen can also serve as fuel for internal combustion engines.
- The energy in 2.2 pounds (1 kilogram) of hydrogen gas contains about the same as the energy in 1 gallon (6.2 pounds, 2.8 kilograms) of gasoline.

Benefits of hydrogen as a fuel:

- **It is readily available.** It is a basic earth element and is very abundant. However, it time consuming to separate hydrogen gas from its companion substances. While that may be the case, the results produce a powerful clean energy source.
- **It doesn't produce harmful emissions.** When it is burned, it doesn't emit harmful substances. Basically, it reacts with oxygen without burning and the energy it releases can be used to generate electricity used to drive an electric motor. Also, it doesn't generate carbon dioxide when burnt, not unlike other power sources.
- **It is environmentally friendly.** It is a non-toxic substance which is rare for a fuel source. Others such as nuclear energy, coal and gasoline are either toxic or found in places that have hazardous environments. Because hydrogen is friendly towards the environment, it can be used in ways that other fuels can't even possibly match.
- **It can be used as fuel in rockets.** It is both powerful and efficient. It is enough to provide power for powerful machines such as spaceships. Also, given that it is environmentally friendly, it is a much safer choice compared to other fuel sources. A fun fact: hydrogen is three times as powerful as gasoline and other fossil fuels. This means that it can accomplish more with less.
- **It is fuel efficient.** Compared to diesel or gas, it is much more fuel efficient as it can produce more energy per pound of fuel. This means that if a car is fueled by hydrogen, it can go farther than a vehicle loaded with the same amount of fuel but using a more traditional source of energy. Hydrogen-powered fuel cells have two or three times the efficiency of traditional combustion technologies. For example, a conventional combustion-based power plant usually generates electricity between 33 to 35 percent efficiency. Hydrogen fuel cells are capable of generating electricity of up to 65 percent efficiency.
- **It is renewable.** It can be produced again and again, unlike other non-renewable sources of energy. This means that with hydrogen, you get a fuel source that is limited. Basically, hydrogen energy can be produced on demand.

Limitations to Hydrogen production:

- Hydrogen is the most abundant element in the universe, but it does not occur in deposits or reserves like fossil fuel. It needs to be actually produced using chemical reactions.
- And here lies hydrogen's biggest roadblock to wider acceptance — hydrogen today is almost entirely produced from fossil fuels.
- Hydrogen is produced by extraction from organic matter, hydrocarbons and, of course, water.
- Majority of the hydrogen that is produced comes from steam-reforming, which combines steam with natural gas at very high temperatures. The most popular gas used for this process is methane.
- Hydrogen, using renewables, is far more expensive to produce. And hydrogen-fueled vehicles are also more expensive than even battery-electric ones.



- It is highly flammable. Since it is a very powerful source of fuel, hydrogen can be very flammable. In fact, it is on the news frequently for its many number of risks. Hydrogen gas burns in air at very wide concentrations – between 4 and 75 percent.
- It is difficult to store. Hydrogen is very hard to move around. When speaking about oil, that element can be sent through pipelines. When discussing coal, that can be easily carried off on the back of trucks. When talking about hydrogen, just moving even small amounts is a very expensive matter.
- The clean hydrogen industry is small and costs are high. There is a big potential for costs to fall, but the use of hydrogen needs to be scaled up and a network of supply infrastructure created.

Conclusion:

China uses hydrogen fuel cell-powered trams while Germany runs hydrogen-trains. Hydrogen is used in bikes, cycles, scooters, trucks, aeroplanes and most other forms of transportation. NASA even launched space shuttles with hydrogen fuel. With a view to accelerate development of hydrogen energy sector in India, a **National Hydrogen Energy Road Map (NHERM)** was prepared and adopted by the National Hydrogen Energy Board in January, 2006 for implementation.

What are 'Cytokine storms'? Discuss its effect on body's immune system.(250 words)

Reference: [Indian Express](#)

Why this question:

The article presents a detailed discussion of what is the cytokine storm and how is it triggered when a virus (or antigen) enters the body for the first time? How does the body's immune system work? Thus the question.

Key demand of the question:

Explain the concept of cytokine storms and discuss its effect on body's immune system.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Define what cytokines are – Cytokines are a class of immune regulatory proteins that are secreted by the cells especially of the immune system.

Body:

Explain what a Cytokine Storm Syndrome is – it a form of Systemic Inflammatory Response Syndrome that can be triggered by a variety of factors such as infections and certain drugs. It occurs when large number of white blood cells are activated and release inflammatory cytokines which in turn activate yet more white blood cells. Move on to explain Role of Cytokine storm in the human immune system. Present the case of COVID-19 patient, explain the effect in detail.

Conclusion:

Conclude with the fact that cytokine is seen as a likely major cause of mortality in both 1918-20 Spanish flu that killed more than 50 million people worldwide. And H1N1 (swine flu) and H5N1 (bird flu) outbreaks in recent years.

Introduction:

A cytokine storm is an overproduction of immune cells and their activating compounds (cytokines), which, in a flu infection, is often associated with a surge of activated immune cells into the lungs. The resulting lung inflammation and fluid buildup can lead to respiratory distress and can be



contaminated by a secondary bacterial pneumonia — often enhancing the mortality in patients. Sometimes, a cytokine storm may be severe or life threatening and lead to multiple organ failure. Also called **hypercytokinemia**.

Accumulating evidence suggests that a subset of patients with severe Covid-19 might have a “Cytokine Storm Syndrome” (CSS).

Body:

Role of Cytokines

Effect on body's immune system:

- Cytokines are inflammatory immunological proteins that are there to fight off infections and ward off cancers.
- They are signalling proteins that are released by cells at local high concentrations — a cytokine storm
- The release of inflammatory mediators increases the blood flow to the area, which allows larger numbers of immune system cells to be carried to the injured tissue, thereby aiding the repairing process. Thus, inflammation has an important protective function.
- However, if this inflammatory response is not regulated, very dangerous consequences can follow. This is when a ‘cytokine storm’ can be triggered.
- A severe immune reaction, leading to the secretion of too many cytokines in the bloodstream, can be harmful since an excess of immune cells can attack healthy tissue as well.
- The damage to the surrounding cells can be catastrophic, leading to sepsis and potentially, death.

Conclusion:

Cytokine storms are not exclusive to coronavirus patients. It is an immune reaction that can occur during other infectious and non-infectious diseases as well. CSS is seen as a likely major cause of mortality in both the 1918-20 Spanish Flu that killed more than 50 million people worldwide, and the H1N1 (swine flu) and H5N1 (bird flu) outbreaks in recent years. If the clinical features of CSS are not recognised and adequate treatment is not promptly instituted, multiple organ failure can result. Researchers writing in The Lancet have suggested that all severe COVID-19 patients should be screened for hyper inflammation.

“The coronavirus speeds up the transition to a digital economy while exposing the digital gap between countries and societies”, Examine.(250 words)

Reference: [Indian Express](https://www.indianexpress.com)

Why this question:

The question aims to evaluate the effect of the corona pandemic on the digital economy of the world society.

Key demand of the question:

Explain the impact of the pandemic on the digital economy, the hints towards the digital divide and the need and necessity to bridge it.

Directive:

Examine – When asked to ‘Examine’, we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Telegram: <https://t.me/insightsIAStips>

Youtube: <https://www.youtube.com/channel/UCpocbcCX9GEIwaile4HLjwA>

Facebook: <https://www.facebook.com/insightsonindia>



Briefly explain the current stage of digital economy across the countries.

Body:

Explain that the global crisis brought on by the coronavirus pandemic has pushed us further into a digital world, and changes in behaviour are likely to have lasting effects when the economy starts to pick up. But not everyone is ready to embrace a more digitized existence.

A [new analysis from UNCTAD](#) maps the changing digital landscape since the last major global calamity, the 2008/09 financial crisis. It looks at how a digitally enabled world is working for some, but not all equally.

According to the analysis, the coronavirus crisis has accelerated the uptake of digital solutions, tools, and services, speeding up the global transition towards a digital economy.

Explain that Inequalities in digital readiness hamper the ability of large parts of the world to take advantage of technologies that help us cope with the coronavirus pandemic by staying at home.

Suggest way forward.

Conclusion:

This situation has significant development implications that cannot be ignored. We need to ensure that we do not leave those who are less digitally equipped even further behind in a post-coronavirus world.

Introduction

While the coronavirus pandemic presents business risks in some areas, it also offers opportunities in others, like boost to the **Digital Economy**. The key is to acknowledge the potential threats while exploring the possibilities.

Body

Digital Economy transition in the wake of pandemic

- With businesses closing their doors and governments urging their citizens to stay home, the coronavirus has had a profound global impact.
- Across the globe, the reduced in-store activity is driving increased e-commerce activity. For example, consumers in India are turning to online grocery shopping.
- According to an assessment by DMEXCO survey in USA, the COVID-19 crisis will accelerate the pace of the digital transformation. Nearly the entire digital sector is currently working from home.
- Working from home environment will be accepted more and more by employers and employees in these situations.
- Collaboration tools like Skype video conferencing, BlueJeans video, Cisco Webex are being re-invented. More companies will opt for customized version of these tools in the near future.
- Expansion of the internet will accelerate. Data protection and security will get more focus henceforth.

However digital economy remains elusive to most part of the third world nations and even within India there remains a huge Digital Divide. Even today smart phones, computers and internet are inaccessible to many around the world. Most of the digital infrastructure is centred around urban areas.

Digital Divide and inequality

- Increasing penetration of digital technology by bridging the existing digital divides is associated with greater social progress of a country.
- Social capital: Once an individual is connected, Internet connectivity and ICTs can enhance his or her future social and cultural capital.



- **Economic disparity is created** between those who can afford the technology and those who don't.
- A direct correlation between a company's access to technological advancements and its overall success in bolstering the economy.
- **Education:** The digital divide also impacts children's ability to learn and grow in low-income school districts. Without Internet access, students are unable to cultivate necessary tech skills in order to understand today's dynamic economy.
- **Lack of information:** Almost all India's socio-economic problems had links to the "digital divide", which had come to stay during the era of digital revolution and then again during the era of internet revolution in India.
 - Rural India suffered from information poverty. Information is controlled by a few at the top of the pyramid who restrict its percolation down to those at the bottom.
 - Political empowerment and mobilisation in the age of social media is difficult when there is digital divide.

India's potential

India is an important and lucrative destination for technological companies due to the following reasons:

- **Burgeoning population:** Rising affluence will make India the third-largest consumer market by 2025, making it imperative for companies to adapt their business models for meeting the changing customer needs. Consumption expenditure will increase three times to hit **\$4 trillion by 2025**, according to a report by the Boston Consulting Group.
- **Growing online presence of the population:** IAMAI report says that Urban India with an estimated population of 455 million already has **300 million** using the internet.
- Rural India has only 186 million internet users. The numbers are expected to reach 500 million soon.
- **Digital India and governance:** Indian government's initiative of Digital India to revolutionize the ICT is a welcome step. The programs of connecting every Gram panchayat with internet under **BharatNet** and mobile connection will strengthen the competition for tech industries.
- **Skilled workforce:** With young workforce and continuing policy reform, India has not only emerged as the fastest-growing economy, but its stars also shine bright amid the current global gloom. About 400 million strong workforce between the age group of 21-40 is ready to make India the labour capital of world.

Conclusion

India must quickly identify the gaps and potentials and leverage our strengths to ensure digital connectivity for all. We can improve the stagnant economy and accelerate the pace of growth by enabling digital revolution in every nook and corner of India, especially in the post-pandemic world.

What is hydroxychloroquine? Why is it in demand? Do you think it is the silver bullet to address the ongoing pandemic? Analyse.(250 words)

Reference: [Indian Express](#)

Introduction:

Hydroxychloroquine (HCQ) is a medication used for the prevention and treatment of certain types of malaria, specifically for chloroquine-sensitive malaria. It is also used in treatment of rheumatoid arthritis, lupus, and porphyria cuanea tarda. The government of India banned export of



hydroxychloroquine, with immediate effect to ensure sufficient availability of the medicine in the domestic market on April 4. The US President warned about “retaliation” if India did not heed his request for the drug. Following this India partially lifted a ban on the export.

Body:**Reasons for HCQ in demand:**

- The International Journal of Antimicrobial Agents (IJAA), reported that Azithromycin (antibiotic) added to hydroxychloroquine was significantly more efficient for COVID-19 elimination.
- However, the study was flagged as being too small to draw a definitive conclusion.
- By late March, Trump had begun to call the drug a “game changer”, and has since been pushing it.
- At the end of last month, the Indian Council of Medical Research (ICMR) issued an advisory recommending the use of hydroxychloroquine in asymptomatic healthcare workers treating COVID-19 patients.
- ICMR also allowed doctors to prescribe it for household contacts of confirmed COVID-19 patients.
- However, the government has stressed that the drug can only be used in COVID-19 treatment on prescription, and that it should not instill a sense of “false security”.
- In March, Following the ICMR’s advisory on the drug, various patients and healthcare professionals are learnt to have stocked up on hydroxychloroquine.
- The drug was then moved to a Schedule H1 status, which means patients who need the drug would have to get a fresh prescription every time they needed to purchase it.

HCQ- a silver bullet to address the ongoing pandemic?

- The drug shows antiviral activity in vitro against coronaviruses, and specifically, SARS-CoV-2.
- Further, the study suggests that prophylaxis (treatment given to prevent disease) with hydroxychloroquine at approved doses could prevent SARS-CoV-2 infection and may help to improve viral shedding.
- Clinical trials are under way in China to know whether the drug can be used for treatment.
- At the same time, research in other parts of the world has sparked interest in a more expansive use of the anti-malarial medicine.
- A study by Chinese researchers, for instance, showed that the drug speeded up the recovery of COVID-19 patients who had suffered pneumonia.
- Experiments on the drug have also yielded promising results in France. Some experts have called for more tests before hydroxychloroquine is held up as a cure for COVID-19.
- But some of the early naysayers of the drug, including the US Food and Drug Administration, have now come around to recommending its use in emergency situations.
- Hydroxychloroquine as a COVID-19 palliative, by all accounts, seems to be a work in progress.
- However, in a world embroiled in a grim struggle against COVID-19, reports of the early success of the drug have generated hope especially in the US, the country hit hardest by the pandemic.
- In such a situation, it is critical that India’s decision on the US request be an informed and considered one.

Conclusion:

India has one of the lowest manufacturing costs in the world – lower than that of the U.S. and almost half of the cost in Europe. As the country plans to intensify the battle against the novel



coronavirus in hotspots, the GoM's decision must be based on consultations with a wide range of experts — scientists, public health and foreign policy experts and representatives of the pharma industry. India should look up to and invest in biotechnology. India's biotechnology industry, comprising biopharmaceuticals, bio-services, bio agriculture, bio-industry and bioinformatics is expected to grow at an average rate of around 30% a year and reach \$100 billion by 2025. To ensure health security of Indian people, revival of R&D and public sector API manufacturers through bodies like CSIR is necessary.

What do you understand by Genome Sequencing? Discuss the various efforts by India in this regard and how will it lead to precision medicine and develop its commercial gene testing services? (250 words)

Reference : [Indian Express](#)

Why this question:

The ongoing analysis of the gene sequences of the novel coronavirus has so far not revealed anything to suggest that the virus present in India is in any way different from that circulating in other parts of the world. There is also no evidence, as of now, of any one particular strain of the virus being more deadly than the other, scientists have said.

Key demand of the question:

The question is straightforward; one must explain the concept of what is genome sequencing and in what way it will help in precision medicine and commercial gene testing services.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In brief explain the context of the question.

Body:

Explain first what is whole genome sequencing? Discuss the various efforts taken by the Government of India in this regard. Explain the challenges involved.

Conclusion:

Conclude with significance of such a project.

Introduction:

A genome is the DNA, or sequence of genes, in a cell. Most of the DNA is in the nucleus and intricately coiled into a structure called the chromosome. The rest is in the mitochondria, the cell's powerhouse. Every human cell contains a pair of chromosomes, each of which has three billion base pairs or one of four molecules that pair in precise ways. The order of base pairs and varying lengths of these sequences constitute the "genes", which are responsible for making amino acids, proteins and, thereby, everything that is necessary for the body to function. It is when these genes are altered or mutated that proteins sometimes do not function as intended, leading to disease.

Body:

Genome sequencing is the process that involves deciphering the exact order of base pairs in an individual. This "deciphering" or reading of the genome is what sequencing is all about. Costs of sequencing differ based on the methods employed to do the reading or the accuracy stressed upon in decoding the genome.

**Importance of Genome Sequencing:**

- A genetic test, which is commercially available at several outlets in the country, usually involves analysing only a portion of the genome that's known to contain aberrant genes linked to disease.
- It is important to ensure that India, with its unparalleled human diversity, is adequately represented in terms of genomic data and develops indigenous capacity to generate, maintain, analyse, utilize and communicate large-scale genome data, in a scalable manner.
- Ever since the human genome was first sequenced in 2003, it opened a fresh perspective on the link between disease and the unique genetic make-up of each individual.
- Nearly 10,000 diseases including cystic fibrosis, thalassemia are known to be the result of a single gene malfunctioning.
- While genes may render some insensitive to certain drugs, genome sequencing has shown that cancer too can be understood from the viewpoint of genetics, rather than being seen as a disease of certain organs.
- The human genome has about 3.2 billion base pairs and just 10 years ago cost about \$10,000. Now prices have fallen to a tenth.

India's efforts towards Genome sequencing:

- **Two institutes of Centre for Scientific and Industrial Research (CSIR) Centre for Cellular and Molecular Biology (CCMB), Hyderabad and Institute of Genomics and Integrative Biology (IGIB), New Delhi have started working together on the whole genome sequencing of novel coronavirus**
- **IndiGen Genome project:**
 - The IndiGen initiative was undertaken by CSIR in April 2019, which was implemented by the CSIR-Institute of Genomics and Integrative Biology (IGIB), Delhi and CSIR-Centre for Cellular and Molecular Biology (CCMB), Hyderabad.
 - The objective is to enable genetic epidemiology and develop public health technologies applications using population genome data.
 - This has enabled benchmarking the scalability of genome sequencing and computational analysis at population scale in a defined timeline.
 - The ability to decode the genetic blueprint of humans through whole genome sequencing will be a major driver for biomedical science.
 - IndiGen programme aims to undertake whole genome sequencing of thousands of individuals representing diverse ethnic groups from India.
- **Genome India:**
 - The Government of India has cleared a gene-mapping project called "Genome India" recently.
 - To build a grid of the Indian "reference genome", to understand fully the type and nature of diseases and traits that comprise the diverse Indian population.
 - This is spearheaded by the Centre for Brain Research at Bengaluru-based Indian Institute of Science as the nodal point of about 20 institutions.



- Each of these institutions will do their bit in collecting samples, doing the computations, and then the research.
- It hopes to form a grid after collecting 10,000 samples in the first phase from across India, to arrive at a representative Indian genome.
- Most genomes have been sourced from urban middle-class persons and are not really seen as representative.
- Over 95% of the genome samples available, which are the basis of new, cutting-edge research in medicine and pharmacology, use the Caucasian genome as the base.
- So, this Indian genome project is seen as a necessity.

Conclusion:

CSIR is planning to train more clinicians for gene data interpretation and rope in more labs for sequencing. Apart from IGIB and CCMB, National Institute of Biomedical Genomics in Kolkata and Indian Institute of Science in Bengaluru will also be part of the IndiGen project. More physicians are being trained to study medical genetics for speedier analysis.



Awareness in the fields of IT, Space, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.

What do you understand by Convalescent plasma therapy? What are its key features? Discuss the pros and cons associated with it. (250 words)

Reference: [Indian Express](#)

Introduction:

The convalescent plasma therapy aims at using antibodies from the blood of a recovered Covid-19 patient to treat those critically affected by the virus. The therapy can also be used to immunize those at a high risk of contracting the virus — such as health workers, families of patients and other high-risk contacts. Several countries including China and the US have already started the clinical trials of the Convalescent Plasma Therapy due to the absence of a coronavirus-specific treatment to cure the infected patients. Recently, Kerala has got the Indian Council of Medical Research (ICMR) approval for the clinical protocol exploring the feasibility of convalescent plasma transfusion which may be administered to severe Covid-19 patients.

Body:

Key features:

- Convalescent Plasma Therapy, also known as passive antibody therapy, provides a person with already developed antibodies to fight a virus.
- Under the Plasma Therapy, the COVID-19 patients will be infused with an antibody-rich blood plasma of the people who have recovered from the novel Coronavirus.
- The Convalescent Plasma Therapy is based on the antibodies and proteins developed by the immune system that protects the body from any potential harm.
- When any virus attacks the body, the immune system produces antibodies to attack the virus. These antibodies are produced by immune cells 'B lymphocytes', found in blood plasma.
- The person who recovers from a virus has developed antibodies that stay in blood to fight the same virus, if it returns. And if these antibodies are infused into other person infected with the same virus, they recognize the virus and attack it. However, these antibodies stay for short period in other person's blood.
- Some antibodies neutralize the virus and some work by mobilizing the immune cells to combat a disease.

Pros:

- Advantages of the therapy are that it is the viable option in our healthcare system.
- It is quickly doable and there are no major side effects.
- The most important thing is that convalescent sera is easily transportable to any part of the country/worldwide by maintaining adequate cold-chain process similar to vaccine
- Adding therapeutic plasma exchange in tertiary care centres using convalescent sera of COVID-19 will be the more effective way of therapy in COVID-19 patients.

Cons:

- Therapy is expensive
- Limited number of plasma donors



- Only the critically-ill patients who need support care will get Plasma Therapy treatment. The therapy will not be used for patients showing mild or no symptoms.
- Despite the potential utility of passive antibody treatments, there have been few concerted efforts to use them as initial therapies against emerging and pandemic infectious threats.
- The absence of large trials certainly contributes to the hesitancy to employ this treatment.
- Also, the most effective formulations (convalescent plasma or hyperimmune globulin, H-Ig) are unknown.
- Convalescent plasma has the advantage that while its antibodies limit viral replication, other plasma components can also exert beneficial effects such as replenishing coagulation factors when given to patients with hemorrhagic fevers such as Ebola.
- On the other hand, individual convalescent plasma units demonstrate donor-dependent variability in antibody specificities and titers. H-Ig preparations, in contrast, contain standardized antibody doses, although fractionation removes IgM, which may be necessary against some viruses.
- Nonetheless, the construction of a strategic stockpile of frozen, pathogen-reduced plasma, collected from Ebola-convalescent patients with well-characterized viral neutralization activities, is one example of how to proceed despite existing unknowns.

Risks involved

Besides speaking about the success of the convalescent plasma therapy, the study by John Hopkins immunologists stated some of the risks associated with it:

- Transfer of blood substances: As the blood transfusion takes place, there are risks that an inadvertent infection might get transferred to the patient.
- Enhancement of infection: The therapy might fail for some patients and can result in an enhanced form of the infection.
- Effect on immune system: The antibody administration may end up suppressing the body's natural immune response, leaving a Covid-19 patient vulnerable to subsequent re-infection.

Conclusion:

The Convalescent plasma therapy was first used during the 1918 Spanish Influenza outbreak. The approach was used recently during the outbreak of SARS, MERS and Ebola viruses. The convalescent plasma therapy is akin to passive immunization as, according to researchers, it is a preventive measure and not a treatment for the Covid-19 disease.

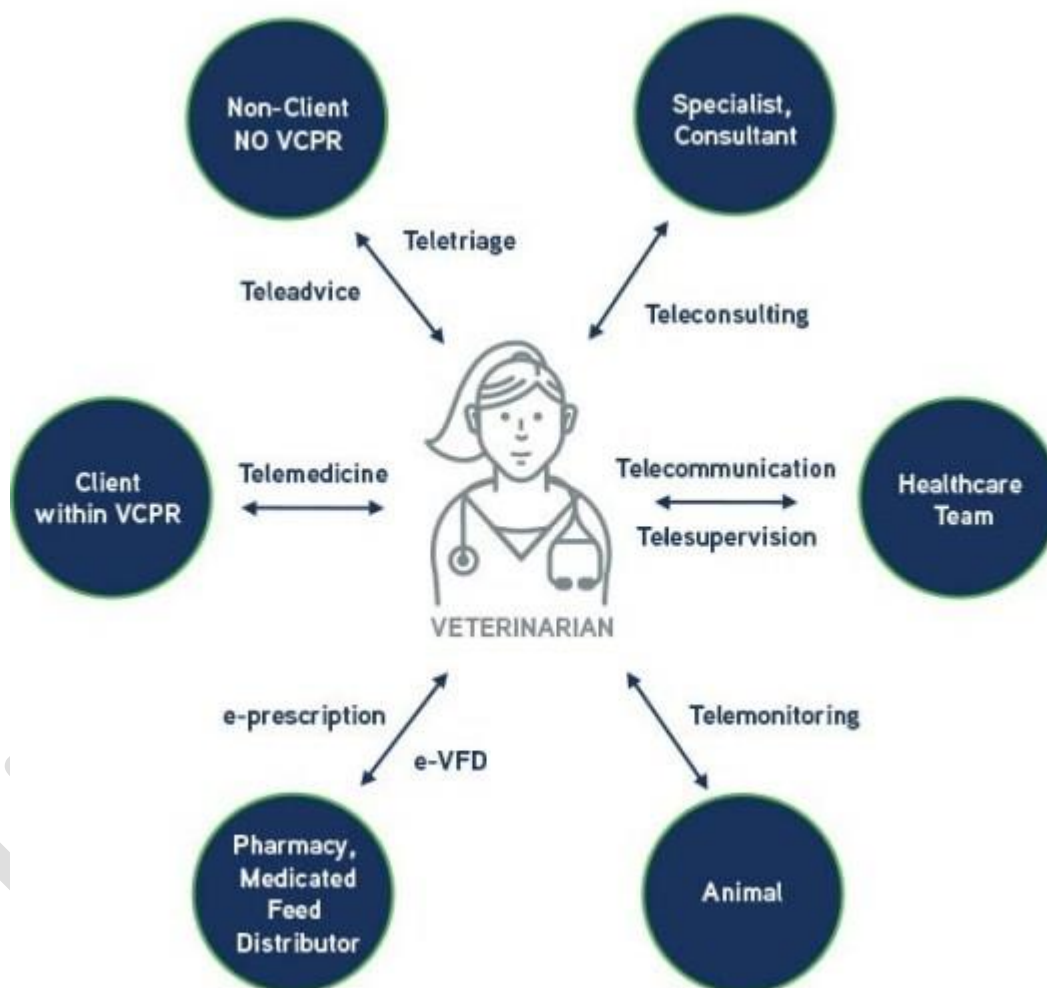
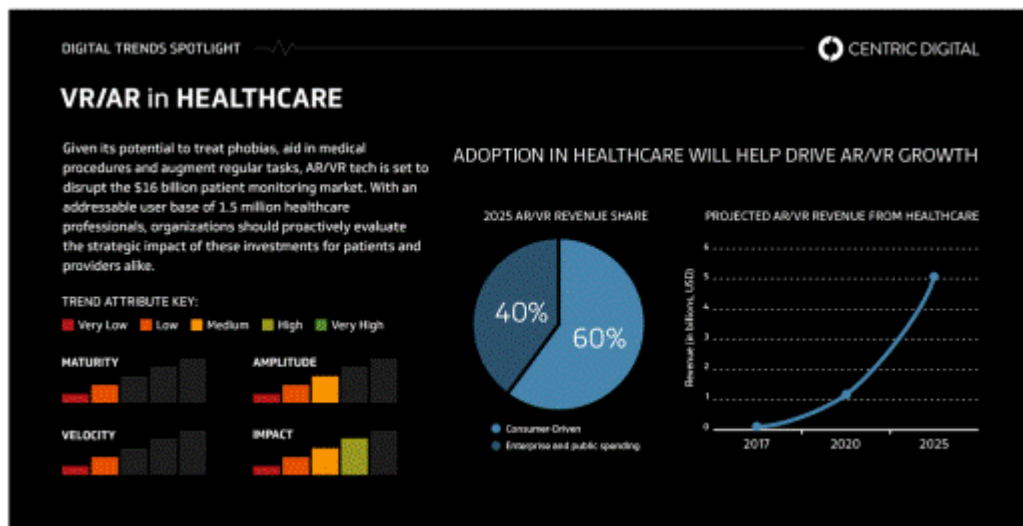
Elaborate on the recent developments made in Indian Telemedicine. Examine the possible inadequacies of the medium and suggest measures to address the same. (250 words)

Reference: [The Hindu](#)

Introduction:

The World Health Organization (WHO) refers to telemedicine as “healing from a distance”. It is the remote delivery of healthcare services. It is the use of telecommunications technology and information technologies to provide remote clinical services to patients. Physicians use telemedicine for the transmission of digital imaging, video consultations, and remote medical diagnosis

Body:



Recent developments made in Indian Telemedicine:

- Indian Space Research Organization made a modest beginning in telemedicine in India with a Telemedicine Pilot Project in 2001, linking Chennai's Apollo Hospital with the Apollo Rural Hospital at Aragonda village of Andhra Pradesh.



- The efficacy of telemedicine has already been shown through the network established by the Indian Space Research Organization (ISRO), which has connected 22 super-specialty hospitals with 78 rural and remote hospitals across the country through its geo-stationary satellites.
- ISRO has also provided connectivity for mobile telemedicine units in villages, particularly in the areas of community health and ophthalmology.
- The setting up of the National Telemedicine Taskforce by the Health Ministry of India, in 2005, paved way for the success of various projects like the ICMR-AROGYASREE, NeHA and VRCs.
- Telemedicine division of MoHFW, GOI has set up a National Telemedicine Portal for implementing a green field project on e-health establishing a National Medical College Network (NMCN) for interlinking the Medical Colleges across the country with the purpose of e-Education and a National Rural Telemedicine Network for e-Healthcare delivery.
- AROGYASREE is another internet-based mobile telemedicine conglomerate that integrates multiple hospitals, mobile medical specialists and rural mobile units/clinics. The project is an initiative of Indian Council of Medical Research (ICMR).

Benefits of Telemedicine in India:

- India only has one government doctor for every 1,139 people, whereas the World Health Organization (WHO) recommends a ratio of 1: 1,000.
- The shortage of doctors is limiting face-to-face consultations among patients. Secondly, India also has a shortage of hospital beds, which makes hospitalization tricky.
- Telemedicine will reduce the time of consultations and improve the quality of healthcare services in urban as well as rural areas, removing many of infrastructural challenges.
- Telemedicine is a sector that bridges the healthcare gap between rural India and urban India.
- In rural India, where the access to medical facilities, specialists' opinion and advance healthcare amenities are limited, telemedicine acts as a healthcare provider bringing access to the specialist doctors to these areas.

Challenges to telemedicine:

- **Unclear Policies**
 - Because technology is growing at such a fast pace, it's been difficult for policymakers to keep up with the industry.
 - There is great uncertainty regarding matters like reimbursement policies, privacy protection, and healthcare laws. In addition, telemedicine laws are different in every state.
- **Fewer Face-to-Face Consultations:**
 - Several physicians and patients are finding it difficult to adapt to telemedicine, especially older adults.
 - Physicians are very concerned about patient mismanagement.
 - While advances in medicine have made it more efficient to use technology, there are times when system outages occur.
 - There is also the potential for error as technology cannot always capture what the human touch can.
- **Technology Is Expensive**



- Healthcare systems that adopt telemedicine solutions can attest that it requires a lot of time and money.
- Implementing a new system requires training and sometimes staff members find it difficult to welcome this change.
- Practice managers, nurses, physicians, and more have to learn how to utilize the system so that practices can see the benefits.
- Although telemedicine is expensive in the beginning, healthcare systems should see a positive return on investment over time due to more patients and less staff.

Conclusion:

Technology plays a crucial role in fight against COVID-19. The pandemic has contributed to the understanding of various ways in which available technologies can be put to better use and presented people with multiple opportunities to harness these devices, techniques and methods to get on with life in the time of lockdown. Among the primary uses is telemedicine that can help reach patients where access to medical care is difficult. While unleashing the full potential of telemedicine to help people, experts and government agencies must be mindful of the possible inadequacies of the medium, and securing sensitive medical information; such cognizance should guide the use of the technology.

An efficient and equitable intellectual property system can help India to realize intellectual property's potential as a catalyst for economic development and social & cultural well-being. Discuss. (250 words)

Reference: [Business Standard](#)

Why this question:

The question is premised on the importance and relevance of efficient and equitable intellectual property system for our country and in what way it can act as a catalyst for economic development and social & cultural well-being.

Key demand of the question:

Explain the importance of intellectual property system to the country and draw its relations to economic development and social & cultural well-being of the country.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Explain IPR – Intellectual property rights (IPR) are the rights given to persons over the creations of their minds: inventions, literary and artistic works, and symbols, names and images used in commerce. They usually give the creator an exclusive right over the use of his/her creation for a certain period of time.

Body:

To start with, explain why there is need of IPRs. Present the case of India and the rule and regulations available with it in respect of IPR regimen. Discuss the national IPR policy. Highlight the challenges and concerns associated.

Conclusion:

Draw a balanced conclusion justifying how an effective IPR system can act as a catalyst for economic development and social & cultural well-being.



Introduction

Intellectual Property Rights (IPRs) are legal rights, which result from intellectual invention, innovation and discovery in the industrial, scientific, literary and artistic fields. These rights entitle an individual or group to the moral and economic rights of creators in their creation. For ex: In India, patents are granted for a period of 20 years from the date of filing of the patent application.

It is also to be noted that the patents are valid only within the territory where they have been granted. Once a patent expires, protection ends and the invention enters the public domain. In India, Patent Acts, 1970 regulate the IPRs.

Body

Need for IPR's in India

- They allow creators, or owners, of patents, trademarks or copyrighted works to benefit from their own work or investment in a creation.
- Patents provide incentives which encourage innovation, which in turn enhances the quality of human life.
- In return for patent protection, all patent owners are obliged to publicly disclose information on their inventions in order to enrich the total body of technical knowledge in the world. This ever increasing body of public knowledge promotes further creativity and innovation.
- The legal protection of new creations encourages the commitment of additional resources for further innovation.
- It promotes innovation and creativity and ensures ease of doing business. It facilitates the transfer of technology in the form of foreign direct investment, joint ventures and licensing.
- The promotion and protection of intellectual property spurs economic growth, creates new jobs and industries, and enhances the quality and enjoyment of life.
- It ensures credibility and quality of a product thereby enhancing consumers confidence through reliable, international trademark protection and enforcement mechanisms to discourage counterfeiting and piracy.
- These rights are outlined in Article 27 of the Universal Declaration of Human Rights, which provides for the right to benefit from the protection of moral and material interests resulting from authorship of scientific, literary or artistic productions.

India's National IPR Policy

The National Intellectual Property Rights (IPR) Policy 2016 was adopted in May 2016 as a vision document to guide future development of IPRs in the country. It's motto is **"Creative India; Innovative India"**.

- **Thrust on IPR Awareness, Outreach and Promotion** - To create public awareness about the economic, social and cultural benefits of IPRs among all sections of society.
- **Generation of IPRs** - To stimulate the generation of IPRs.
- **Legal Framework** - To have strong and effective IPR laws, which balance the interests of rights owners with larger public interest.



- **Administration and Management** - To modernize and strengthen service-oriented IPR administration.
 - It sets in place an institutional mechanism for implementation, monitoring and review. It aims to incorporate and adapt global best practices to the Indian scenario.
 - **Department for Promotion of Industry and Internal Trade (DPIIT)**, Ministry of Commerce, Government of India, has been appointed as the nodal department to coordinate, guide and oversee the implementation and future development of IPRs in India.
 - The '**Cell for IPR Promotion & Management (CIPAM)**', setup under the aegis of DPIIT, is to be the single point of reference for implementation of the objectives of the National IPR Policy.
- **Commercialization of IPRs** - Get value for IPRs through commercialization.
- **Enforcement and Adjudication** - To strengthen the enforcement and adjudicatory mechanisms for combating IPR infringements.
- **Inclusive Development**- To strengthen and expand human resources, institutions and capacities for teaching, training, research and skill building in IPRs.

Challenges associated with IPR's in India

- Policy recommends scientist and professors to convert all their discoveries into IP which in turn has the potential to curb the free flow of knowledge.
- Policy is aimed commercialization and monetizing on IPR's. Rather focus must be to create good and quality innovation that is beneficial for all.
- Foreign investors and MNCs allege that Indian law does not protect against unfair commercial use of test data or other data submitted to the government during the application for market approval of pharmaceutical or agro-chemical products. For this they demand a Data Exclusivity law.
- IPR policy is driven by the agenda of IP maximalism, where IP owners' rights will be maximized at the cost of public interest. This (policy) will influence courts and judges who might consider rights of patentees above that on common man in certain cases.
- Connection between patenting and application of patented knowledge is yet to be established. Hence, patenting and not applying the new invention could deter progress.
- Policy recommends criminalization of unauthorized copying of movies – which is just a civil wrong.
- **Compulsory Licensing**: It is problematic for foreign investors who bring technology as they are concerned about the misuse of CL to replicate their products. It has been impacting India-EU FTA negotiations.
- India continues to remain on the United States Trade Representative's (USTR's) 'Priority Watch List' for alleged violations of intellectual property rights (IPR).



- Not understanding the modes of creativity and sharing in “shadow economy”, the policy leans towards superimposition of formal IP framework.
- While IP could accelerate innovation in certain technologies it in turn impedes in others. Policy recommends scientist and professors to convert all their discoveries

Need of the hour

- India will be unable to take full advantage of the transformative benefits of a strong IP system unless and until it addresses gaps in its IP laws and regulations.
- Fostering an environment where innovation flourishes and a knowledge economy is built, is the key idea. Hence, the policy should have a balance.
- Success of India’s flagship programmes - Make in India and Start up India - depends on the boost of innovation ecosystem with better IPR safeguardings.
- It should encourage patenting and at the same time ensure that patentability of a product/process does not deter further innovation and progress.

Conclusion

Support for innovation has to be accompanied with instruments that guard local companies against the misuse of market power, coercive bargaining and aggressive acquisition strategies. India needs to spread awareness on IPR in public and for its traditional industries to enable fair monetization of IP Rights. An efficient and equitable intellectual property system can help all countries to realize intellectual property’s potential as a catalyst for economic development and social & cultural well-being.

Conservation, environmental pollution and degradation, environmental impact assessment.

While discussing the seaweed distribution and resource potential in India bring out the challenges of rising seaweed tides.(250 words)

Reference: [Geography and You](#), [Research Gate](#)

Why this question:

The question is straightforward and is based on the theme of Seaweed; its utility as a resource and possible concerns associated with it.

Key demand of the question:

Explain the seaweed distribution and resource potential in India; also bring out the challenges of rising seaweed tides.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

First define what Seaweed is – Seaweed or sea vegetables are forms of algae that grow in the sea. They’re a food source for ocean life and range in color from red to green to brown to black. Seaweed grows along rocky shorelines around the world, but it’s most commonly eaten in Asian countries such as Japan, Korea and China

Body:

Telegram: <https://t.me/insightsIAStips>

Youtube: <https://www.youtube.com/channel/UCpocbcX9GEIwaile4HLjwA>

Facebook: <https://www.facebook.com/insightsonindia>



To start with, discuss the distribution and resource potential of it in India – According to a report from the Central Marine Fisheries Research Institute (CMFRI), only 30 million tonnes of seaweeds, valuing €8 billion, are being harvested every year. In India, seaweeds grow abundantly along the Tamil Nadu and Gujarat coasts and around Lakshadweep and the Andaman and Nicobar islands. Discuss the importance of seaweed cultivation to India. Then move onto explain the challenges – highlight the issue of coastal eutrophication, disruption to coastal tourism, negative impact on the health of coasts etc.

Conclusion:

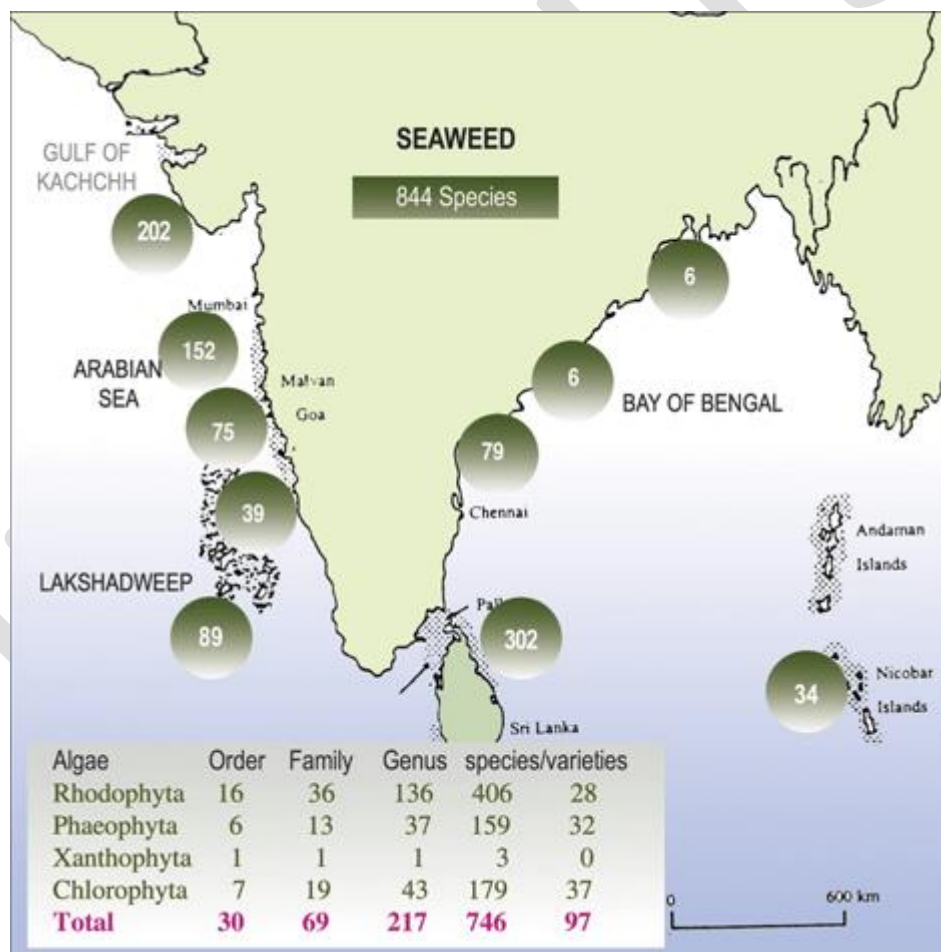
Conclude by suggesting solutions to address the issues associated.

Introduction

Seaweeds are a group of primitive non-flowering marine plants with no distinguishable root, stem and leaves. They are valuable renewable marine living resource and distributed in the intertidal, shallow and deep waters of the sea up to 150m depth. They also occur in estuaries and backwaters. Seaweeds grow on rocks, dead coral stones, pebbles, solid substrates and other plants as epiphytes. Based on the type of pigments, morphological and anatomical characters, seaweeds are broadly classified in to green, brown, red and blue-green algae.

Body

Distribution in India





- In India, several species of green, brown, red and blue-green algae with luxuriant growth occur along the southeast coast of **Tamil Nadu from Rameswaram to Kanyakumari** covering 21 islands in Gulf of Mannar.
- In Gujarat coast, seaweeds occur abundantly at **Okha, Dwarka, Porbandar, Veraval, Diu and Gopnath**.
- Rich seaweeds are present in **Lakshadweep, Andaman -Nicobar Islands** and also in and around Mumbai, Ratnagiri, Goa, Karwar, Varkala, Vizhinjam, Visakhapatnam and coastal lakes such as Pulicat and Chilka.
- In Indian waters so far 271 genera and 844 species of marine algae have been reported.
- Apart from the commonly available 200 species of seaweeds, about 680 species of marine algae belonging to **Rhodophyta, Phaeophyta, Chlorophyta** commonly known as red, brown and green seaweeds have also been identified in both inter-tidal and deep water regions. Among these seaweeds **green algae are rare**. Brown algae are widely distributed. Red algae are small and delicate, with a feathery appearance.

Advantages for India

- **Export Potential:** According to a report from the Central Marine Fisheries Research Institute (CMFRI), only 30 million tonnes of seaweeds, valuing €8 billion, are being harvested every year.
 - India can cultivate more and harvest more with its vast 7500km coastline.
- **Economic/Commercial usage:** Seaweeds new renewable source of food, energy, chemicals and medicines. Provides valuable source of raw material for industries like health food, medicines, pharmaceuticals, textiles, fertilizers, animal feed etc.
 - Seaweeds used for production of **Agar, Alginates & Carrageenan**.
 - Chemicals from brown seaweeds such as **alginic acid, mannitol, laminarin, fucoidin and iodine** have been extracted successfully on a commercial basis.
 - As the alginates can absorb many times their own weight of water, have a wide range of viscosity, can readily form gels and are non-toxic, they have countless uses in the manufacture of **pharmaceuticals, cosmetic creams, paper and cardboard**, and processed foods.
- **Social benefits:** Provide occupation for the coastal people.
 - Provide continues supply of raw material for seaweed based industry.
 - Provide seaweeds of uniform quality for use in industry.
 - Conserve natural populations of concerned seaweeds.
 - Seaweed farming is an ecofriendly activity.
 - Major tool to treat coastal pollution in the sea and reduce CO2 in global warming
- **Challenges in cultivation**
 - The major problems in the seaweed industry include over exploitation leading to a scarcity of raw material, poor quality raw material and also water scarcity.
 - There are labor shortages during the paddy harvesting and transplanting season.



- The lack of technology to improve processed product quality, and a lack of information on new and alternative sources of raw materials.
- Despite the great number of sheltered bays and lagoons suitable for mariculture, not many large-scale (eg: **Pepsico**) attempts to grow seaweed have been made in India so far.
- The culture period of *Porphyra Indica* is only 4 months during winter season, as it cannot grow in rest of the year due to high temperatures. Moreover, the yield is not economical.
 - The same is true for *Enteromorpha intestinalis* as these are the 2 algae which are directly edible in India.
- Efforts are needed to increase production through improving harvesting techniques, removal of competing species, creation of artificial habitats and seeding of cleared areas.
- **Eutrophication** is one of the harmful effects of seaweed cultivation if done unscientifically. This will decrease the dissolved oxygen and lead to mass kill of marine species near the shore.

Conclusion

There is a huge potential in India for seaweed cultivation, which in turn will provide alternate livelihood and income to the local fishermen community. Food processing industries must divulge into this sector to leverage our ample resources and improve exports in seaweed products.

Does India need to have a long-term Water management plan gaining higher importance within the Master Plan of cities? Examine.(250 words)

Reference: [Financial Express](#)

Introduction:

Indian cities have witnessed unprecedented growth over the past few decades that, in turn, has had a drastic impact on water availability. Depleting water resources, changing climate and unsustainable water cycle management are exacerbating the water situation. Many Indian cities have witnessed water exigencies in the form of severe drought and flood. Around 600 million Indians face high to extreme water stress. By 2030, India's demand for water might be double the available supply.

Body:

Need for India to have long-term water management plan:

- Indian cities need to diversify their water resources portfolio.
- Indian cities often fail to anticipate water-related issues and are left to react to these.
- With ageing assets, water theft and non-revenue water, our cities cannot continue to dole out water subsidies, which eventually lead to paucity of funds that could have helped upgrade the water infrastructure.

Measures needed to be taken:

- **A long-term Water Master Plan** should gain higher importance within the Master Plan of cities.



- **Rain-water harvesting:** Few Indian cities have bye-laws that mandate rainwater harvesting. This will need strong legislation and engineering interventions.
- **Recycled water:** Recycled water presents itself as an important component of the water portfolio. It is a climate-change resilient water resource, which can be reliably produced using advanced treatment technologies.
- **Desalination plants:** India too has some desalination plants across few coastal cities, and can capitalise Singapore's strong experience in seawater desalination in bringing down per unit cost of water and developing seawater as a sustainable water source.
- **Integration of digital technology into water management:** The availability of smart metres, water-efficient devices and infrastructure monitoring devices to plug any leakages will be useful to sustain operations and maintenance.
- **Awareness and Education:** Encourage people to reduce their water use by 10 litres a day, observe water conservation week, public visits and engagement, and water visitor centres for people to understand and appreciate the value of water.

Case study of Singapore:

- Singapore's water story offers many valuable lessons that can be learned, contextualised and implemented in Indian cities.
- At the time of its independence, Singapore faced lack of perennial surface water sources, flooding and polluted water ways, limited groundwater availability with a risk of seawater intrusion and dependence on a neighbouring country for drinking water.
- It was able to turn around this vulnerability.
- Today, Singapore's diverse water portfolio—four national taps comprising of surface water, recycled water, harnessed rainwater and desalinated water, ensure that the country's water needs are met sustainably.
- In Singapore, recycled water is called NEWater, wherein used water is treated using advanced treatment technologies (combination of micro and ultra-filtration followed by reverse osmosis and UV disinfection) to ensure that the recycled water complies with the highest water quality standards, and is fit for human consumption.
- Singapore utilises desalinated sea water as its third source of water.
- Integrated and long-term water resources' planning has been Singapore's strength. Supported by strong governance, Singapore's National Water Agency (NWA) judiciously manages the price for its water services, and proactively invests in planning for the future next drop of water. This is supported by strong public outreach and stakeholder engagement programmes, to bolster the value of water

Conclusion:

Indian cities can learn a lot from Singapore, but there is no point blaming them without giving them a fair chance to fight. If we have any hesitation taking this decision, we can always go back to the wise words of the founding father of Singapore, the late Lee Kuan Yew, 'Water dominated every other policy. Every other policy had to bend at the knees for water survival'.



Disaster and disaster management.

Post COVID-19 crisis, the world would witness changes in the geopolitical and geo-economic order. In this context, discuss how the changes can occur across the global institutions and regions.(250 words)

Reference: [The Hindu](#)

Why this question:

The question is amidst the possible geopolitical and geo-economic order that the world would witness owing to the COVID-19 scenario.

Key demand of the question:

Explain the effect of the COVID-19 pandemic on the entire world with special focus on the effect it brings to global institutions and regions..

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly elaborate on the 'new normal' brought by the COVID -19 pandemic.

Body:

To start with, Discuss in brief, what are the new geo political and Geo economic order shifts the pandemic brought. Explain the effect of it on the institutional changes with focus on WHO, UNSC etc. Bring out in detail how the changes are varied across the regions-West, Europe and Asia etc.

Conclusion:

Conclude with a forward looking approach.

Introduction:

COVID-19 pandemic is set to drastically alter geopolitics and human society. The pandemic is unprecedented and has led to radical uncertainty. COVID-19 would change the world and reshape the human society. There is already concern that a diminution in human values could occur, and with this, the concept of an international community might well cease to exist.

Body:

Possible geo-economical change:

- China, which is already one of the most prominent nations of the world and an important player in international institutions, could grow even stronger.
- China is considered indispensable as the world's supplier of manufactured goods.
- China now seeks to benefit from its early recovery from the pandemic to take advantage of the problems of the rest of the world, by using its manufacturing capability to its geo-economic advantage.
- The current pandemic could hollow out the financial viability of many companies, institutions and banks across the world. There are reports of China's intentions to acquire financial assets and stakes in banks and companies across the world, taking advantage of the scaled-down value of their assets.
- China is poised to dominate the global economy.

**Possible geo-political changes:**

- By offering medical aid and other essential supplies to several Asian and African countries during the current pandemic threat, China would gain a geopolitical advantage by its action.
- China with its Belt and Road Initiative, which seeks to combine regional connectivity alongside gaining a virtual economic and substantial stranglehold across Asia, is ostensibly preparing the way for a China-centric multilateral globalisation framework.

Changes occurring in global institutions:

- Existing international institutions such as the United Nations, the United Nations Security Council and the World Health Organization (WHO) are being blamed of having failed to measure up to the challenge posed by the pandemic.
- The UN Security Council has not been able to take any concrete action in dealing with the situation.
- WHO has been blamed of being China-centric. WHO's underestimation and inaction during the initial phase could have amplified the pandemic to such large scales.
- The UN and other global organizations have not been able to ensure a common vision or approach among the many nations. They have failed to ensure cooperation and collaboration among its members.
- That prestigious global institutions are under attack, even in such critical times, speaks about the mood prevailing across the world.

Changes occurring at the regional level:**A faltering West:**

- COVID-19 would effectively change the existing global order that has existed since the late 1940s. The geopolitical fallout of this pandemic could be the decreased dominance of the west.
- The U.S. has been weakened economically and politically due to COVID-19. The U.S.'s capacity to play a critical role in world affairs seems to have diminished. The United States will be compelled to cede ground to the rising Chinese power.
- The Brexit came as a body blow to the EU. Europe too has been badly affected by the pandemic. Germany which has played a major role in promoting EU is turning inwards.
- Both France and a post-Brexit United Kingdom will also be focusing more on domestic issues.
- Europe, in the short and medium term, will prove incapable of defining and defending its common interests, leaving it with very little influence in world affairs.

West Asia:

- In West Asia, both Saudi Arabia and Iran are set to face difficult times.
- The oil price meltdown will aggravate an already difficult situation across the region.
- Given Israel's non-dependency on oil and it being relatively less impacted due to the pandemic, it might emerge stronger out of the pandemic.

India:



- The economic downturn might reduce India's room for manoeuvring in global affairs.
- The increasing Chinese investment in South Asia could see its influence grow in the South Asian region and diminish India's influence in the region.
- India's leverage in West Asia will suffer due to the declining oil prices.
- The large Indian expatriate community in West Asia would be severely affected and may seek repatriation back to India. This would substantially reduce the inflow of foreign funds to India from the region.

Conclusion:

The COVID-19 pandemic is unprecedented, involving as it does far too many variables. The very complexity of the novel coronavirus leads to radical uncertainty. Hence, it is unlikely that the world will ever be the same again. Thus, there is a need for the global community to work together by taking all the countries into confidence and supporting them. **Together we stand, divided we fall** – the adage holds perfectly apt for the coming times.

Role of external state and non-state actors in creating challenges to internal security.

The outbreak of the COVID-19 pandemic and subsequent countrywide lockdown to prevent its transmission have variedly impacted the Indian Maoists. Critically examine. (250 words)

Reference : idsa.in, [Economic Times](https://www.economic-times.com)

Why this question:

the lockdown has certainly increased Maoists' desperation to meet their demands of food supplies and other essentials. Maoists, all across the left wing extremism (LWE)-affected states, primarily procure their rations and other essential commodities through a network of aides from village-level haat bazaars (weekly markets). With haat bazaars being temporarily shut, they are reportedly facing acute shortage of food supplies. Also, since the entire economic and construction activities have been grounded in these areas to ensure the efficacy of the lockdown, the Maoists' finances have taken a beating given that extortions from contractors, mining industry, truck drivers, etc., formed a major part of their finances.

Key demand of the question

One needs to examine how the COVID-19 lockdown has halted the finances and other support system to the Maoists, leading to increased pressure on the villagers nearby. Also one needs to talk about how this has led to variations in the form of attacks as seen in Sukma recently, while a faction of Naxals have apparently called for truce with the government authorities.

Directive word

Critically examine – When asked to 'Examine', we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications. When 'critically' is suffixed or prefixed to a directive, all you need to do is look at the good and bad of something and give a fair judgement.

Structure of the answer

Introduction:

In a few introductory lines briefly discuss the COVID-19 lockdown across nation and how it has affected the supplies of goods and services across the nation to one and all.

Body:



The question must discuss the following points:

How the naxals are affected due to the lockdown and breakage in supply of goods and services.

The ramifications of the same in the form of attacks on the security forces, threats on the local villagers, headmen of village, exploiting the villagers for meeting their ends etc.

Also on the other hand, how a faction of naxals are calling for a truce with the government.

Also discuss why there is a need to remain cautious with respect to internal security and measures to attain the same.

Conclusion:

Give a balanced way forward.

Introduction:

Naxalism is considered to be one of the biggest internal security threats India faces. Naxal violence is related to the intensity of the feeling of people of their deprivation and their commitment to take revenge against those who are believed to be responsible for such denial. Recently, 17 security personnel killed in Sukma Maoist attack in Chattisgarh.

The outbreak of the COVID-19 pandemic and subsequent countrywide lockdown to prevent its transmission have variedly impacted the Indian Maoists. While there are no verified inputs that suggest confirmed cases of coronavirus among their cadres, the lockdown has certainly increased Maoists' desperation to meet their demands of food supplies and other essentials.

Body:

Impacts on Maoists:

- Maoists, all across the left wing extremism (LWE)-affected states, primarily procure their rations and other essential commodities through a network of aides from village-level haat bazaars (weekly markets).
- With haat bazaars being temporarily shut, they are reportedly facing acute shortage of food supplies.
- Also, since the entire economic and construction activities have been grounded in these areas to ensure the efficacy of the lockdown, the Maoists' finances have taken a beating given that extortions from contractors, mining industry, truck drivers, etc., formed a major part of their finances.

The resulting impacts on the villagers and tribals:

- The Maoists are reported to have devised a few coping mechanisms to overcome the impact of the lockdown on their supplies of rations and finances, albeit in a minuscule way.
- The Maoists in Bastar are forcing the village headmen and others to arrange rations for them. Places where villagers are unable to arrange large stocks of rice, the Maoists are snatching a one-month free ration from each of the below poverty line (BPL) families.
- The Maoists are also allegedly transporting stranded migrant workers to their respective villages in lieu of money.
- The lockdown situation has increased Maoists' desperation and they are exploiting the villagers for meeting their ends.

Truce call by a few Maoists' to overcome the effects of lockdown:

- The Maoists had reportedly offered a temporary unilateral ceasefire early this month in the states of Andhra Pradesh and Odisha, especially in the regions falling under Andhra Odisha Border Special Zonal Committee (AOBSZC).



- While the Maoists' refrain is to 'facilitate government's relief operations in their core areas to fight COVID-19', it is believed that the offer is opportunistic and misleading.
- The factors that might have influenced the Maoists' decision to initiate a truce call are: achieving a possible breather in hitherto intensified security offensive in their core areas, and the increased social pressure to pave the way for COVID-19 relief operations in remote villages, which otherwise might increase the miseries of the underprivileged masses.
- The veracity of the truce call is also debatable as it has not come from the all-powerful Central Committee of the Communist Party of India (Maoist) or CPI (Maoist).

But challenges remain:

- Moreover, the Maoists have not relented on their violent campaigns in the most affected states of Chhattisgarh, Jharkhand and Bihar.
- The Maoist ambush of March 21-22, wherein 17 security personnel were killed and 15 others severely injured in Chhattisgarh's Sukma District is a case in point.
- The Maoists are, in fact, shoring up their strength and preparing for future operations.
- They are reportedly holding village-level meetings and recruiting ground-level forces in the remote villages of Jagdalpur, Dantewada, and Sukma districts.
- It is believed that the Maoists could also offer money and enlist the jobless migrant workers returning to their villages.
- Recently, a large group of armed Maoists from Andhra Pradesh, Telangana, Maharashtra, Jharkhand, Odisha and West Bengal has reportedly joined their Bastar colleagues to up the ante against the security forces.
- They are torching road construction vehicles, digging up the roads that lead to the strategically important police camps in remote villages and planting landmines on the deserted lanes to target the security patrols.
- Besides, the Maoists' recent forays in the areas of Todma and the Dantewada-Katekalyan main road are testimony of their increased activities during the lockdown.

Measures needed:

- **Good governance:**
 - The presence of Naxals in the country also reveals the loopholes in the law and order of the country which has failed to curb the menace.
 - Central government needs to implement a coherent national strategy to end Naxalism.
- **Dialogue:**
 - Dialogues between the Naxal leaders, and the government officials can be a way work out a solution.
 - The government should initiate sincere dialogue with Naxalites.
- **Generate more employment and increase wages:**
 - Insecure livelihood and unemployment in the areas have left the people with no option but to join the Naxals.
 - If we are actually thinking of ways to end Naxalism, we'll first have to provide the people of the area with proper employment opportunities with increased wages



- **Rehabilitation and resettlement:**
 - mining grounds, irrigation areas, industries, etc., in the area without any provision for the resettlement of the displaced people has only added to the woes of the poor
 - There needs to be more emphasis on rehabilitation of these affected population
- **Prevent environmental degradation:**
 - Environmental degradation in the form of destruction of land and water resources due to mining and industrial activities
 - The locals are left with disrupted lives and adversely affecting tourism
- **Stop the political marginalization of weaker sections**
 - Weaker sections of the society, the schedule castes and schedule tribes still face discrimination from the upper class.
 - These downtrodden sections don't enjoy equal participation in casting and contesting politically, making them soft targets of Naxals.
- **Remove disparity:**
 - Economic disparity and the growing distance between rich and the poor is one of the main problems that has contributed to the growth of Naxalism
 - This distance needs to be filled to an extent hastily to stop Naxalism
- **Let ordinary citizens have access to basic resources**
 - One of the major reasons for unrest is the exploitation of forest and lands of the tribal people for industrial purposes.
 - The loss of land and the lack of basic facilities like education, freedom, sanitation and food
- **Take steps for welfare of the tribals:**
 - The socially backward tribals form the major support base for Naxalites because of inequality, illiteracy and lack of opportunities.
 - It's important to prevent these people from falling in the Naxal trap.
- **Modernize law enforcement agencies:**
 - the major policing lies in the hands of the state governments
 - At federal level, many agencies are under the command of Union Ministry of Home Affairs
 - Central government must inroads into these disturbed states with their agencies well-equipped with modern artillery and assist the usually poorly-equipped agencies of the state.

Need of the Hour:

- Central and State governments, the administration and the security establishment need to recognise that the movement cannot be approached from a purely law and order point of view.
- The process of improving the conditions of the poor and the tribals clearly need to be speeded up if the movement is to be effectively checked.



- Winning the hearts and minds of the tribal population and other marginalised groups will lie at the core of the counter-insurgency strategy
- Development of road and rail infrastructure will not only enhance economic growth and development but will also help in countering Maoist propaganda
- The improved road connectivity will also have a multiplier effect on the effectiveness of the security forces in carrying out operations.
- Providing incentives and alternate life support system to those surrendered

Conclusion:

Through a holistic approach focusing on development and security related interventions, the LWE problem can be successfully tackled. Civil society and the media should build pressure on the Maoists to eschew violence, join the mainstream and recognise the fact that the socio-economic and political dynamics and aspirations of 21st Century India are far removed from the Maoist world-view. An ideology based on violence and annihilation is doomed to fail in a democracy which offers legitimate forums of grievance redressal.

Security challenges and their management in border areas - linkages of organized crime with terrorism.

Despite upsurge in exports and cut in imports of Defence equipment, India's Defence sector remains uncompetitive globally. Examine.(250 words)

Reference: [The Hindu](#)

Key demand of the question:

According to latest estimates released by the Stockholm International Peace Research Institute (SIPRI), the Indian defence exports have increased and defence imports have decreased during the period between 2009-13 and 2014-18. Thus the question.

Directive:

Examine – When asked to 'Examine', we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Briefly put forth the background of the question.

Body:

To start with, discuss why India's defence model faces challenges despite the positive trends generated by 'Make in India'. Discuss the positives and negatives of Make in India drive. Explain the factors contributing to falling imports apart from the make in India concept; Indian defence acquisitions have also fallen due to the cancellation of big-ticket items. SMEs still face stunted growth because India's defence industrial model is at odds with global trends in that it tends to create disincentives for the private sector. Suggest upon the current export trends. Thus, from a volume and value standpoint, Indian defence exports, while showing a promising upward trend has failed to meet desired success globally. To help ideas meet action, there is a need to create an environment for greater participation of private industry.

Conclusion:

Conclude that to ensure that 'Make in India' initiative reaches its full potential, focus should be laid on export promotion/facilitation and export regulation.

Introduction:



Indian defence sector has been largely dependent on foreign imports. However, this trend is not in the long term Security interest of the Nation. However, the trend has been changing in recent times. According to the latest estimates released by the Stockholm International Peace Research Institute (SIPRI) in the period between 2009-13 and 2014-18, Indian defence imports fell even as exports increased.

Body:**Reasons for India's reduced imports:**

- **Make in India initiative**

- Defence Procurement Procedure, 2016 lays out measures necessary for building India's defence Industry
- A new category called 'Buy Indian Indigenously Designed, Developed and Manufactured' (IDDM) was created under DPP-2016 which was given highest preference in defence procurement.
- For imported defence goods, its Components & service parts from Indian enterprises (private & public sector) have been prioritised by the government
- Simplifying "Make" procedures especially for MSMEs to encourage indigenous defence production
- Relaxed norms that makes private partners eligible for technology transfers so as to boost their capabilities.
- In 2018-19, the three armed services sourced 54% of their defence equipment from Indian industry for their combined capital and revenue expenditures

- **Contribution by SMEs:**

- Small and Medium Enterprises (SMEs) until 2016 accounted for 17.5% share of the Indian defence market.
- According to government of India data for the financial year 2018-19, the three armed services for their combined capital and revenue expenditures sourced 54% of their defence equipment from Indian industry.

- **Cancellation of defence contracts:**

- Government has cancelled the defence contracts which led to significant reduction of import bill
- In 2015, government reduced the size of the original acquisition of 126 Rafale Medium Multi-Role Combat Aircraft (MMRCA) from Dassault to 36 aircraft, which is also responsible for significantly driving down the import bill.
- India-Russia joint venture for the development of the advanced Su-57 stealth Fifth Generation Fighter Aircraft (FGFA). India cancelled involvement in 2018 due to rising dissatisfaction in delays with the project as well as the absence of capabilities that would benefit a fifth generation fighter jet.

- **Public sector contribution:**



- Among arms producers, India has four companies among the top 100 biggest arms producers of the world.
 - It is estimated, according to SIPRI, their combined sales were \$7.5 billion in 2017, representing a 1% jump from 2016.
 - The largest Indian arms producers are the Indian Ordnance Factories and the Hindustan Aeronautics Limited (HAL), which are placed 37th and 38th, respectively, followed by Bharat Electronics Limited (BEL) and Bharat Dynamics Limited (BDL). All four of these companies are public sector enterprises and account for the bulk of the domestic armament demand.
- **Delays in supplying equipment:**
 - Delays in supplying of equipments by vendors also led to falling imports.
 - For instance, T-90 battle tanks & Su-30 combat aircraft from Russia; Submarines from France

Reasons for rise of defence exports

- In the last two fiscal years, 2017-18 and 2018-19, exports have witnessed a surge from ₹7,500 crore to ₹11,000 crore, representing a 40% increase in exports.
- Removal of export barrier: Government has removed several products that were earlier restricted from exports
- Government dispensed with the No Objection Certificate (NOC) under the DPP that restricted exports of aerospace products & several dual-use items

Way forward:

- To boost indigenization, DRDO needs to be given more autonomy like space and atomic energy departments
- With opening up of 100% FDI in defence sector, giving private players an opportunity would bring in the money as well as competition to the Defence PSUs.
- Setting up of the planned defence industrial corridors.
- Robust Defence Diplomacy, for which a cadre of defence diplomats should be created so that new co-ordination with world can bring new idea and innovations.
- Setting up of a Defence Export Organization to promote export of defence equipments.
- Instituting an Independent Audit addressing issues of inefficiency and accountability, this shall help in keeping the flow of ideas and innovation.
- Setting up an aerospace university, can help in bringing new ideas and innovations

Conclusion:

Thus, from a volume and value standpoint, Indian defence exports, while showing a promising upward trend has failed to meet desired success globally. To help ideas meet action, there is a need to create an environment for greater participation of private industry. To ensure that 'Make in India' initiative reaches its full potential, focus should be laid on export promotion/facilitation and export regulation.



“Biological weapons are gradually being recognized as one of the crucial future threats to international security”, do you agree? Comment. (250 words)

Reference: [Financial Express](#)

Introduction:

Biological weapon, also called **germ weapon**, any of a number of disease-producing agents—such as bacteria, viruses, rickettsiae, fungi, toxins, or other biological agents—that may be utilized as weapons against humans, animals, or plants. Biological weapons, like chemical weapons, radiological weapons, and nuclear weapons, are commonly referred to as weapons of mass destruction, although the term is not truly appropriate in the case of biological armaments. Lethal biological weapons may be capable of causing mass deaths, but they are incapable of mass destruction of infrastructure, buildings, or equipment.

Body:

The UN chief, in his message on the 45th anniversary of the Biological Weapons Convention’s entry into force, said that all countries should reaffirm their unequivocal rejection of the use of disease as a weapon.

Challenges posed by bioweapons:

- The technology associated with the manufacture of biological weapons is relatively inexpensive, and because it is similar to that used in vaccine production facilities, it is easy to obtain.
- The microbial agents needed for most biological weapons are widely available.
- It is difficult to gauge the extent of biological weapons development in other nations since production facilities require little space and are not easy to identify.
- For instance, the acquisition and dissemination of even the most highly restricted organism, Variola major, is not an implausible scenario.
- There is growing concern that biological weapon designs or materials from this program might find their way to other nations or terrorist groups.
- Finally, the series of revelations following the Gulf War regarding the true capacity and scope of Iraq’s biological weapons program has been alarming.
- In addition to creating many tons of pathogens and toxins, including B. anthracis and C. botulinum toxin, Iraq also admitted that it had loaded bombs and missiles with biological agents

Impact of Bioterrorism:

- Bioweapons offer terrorist groups and “rogue states” like Pakistan that are waging an unconventional war against the Indian government for the last three decades an affordable way to counter India’s overwhelming military superiority.
- Genetic maps of deadly viruses, bacteria and other microorganisms are already broadly available in the public domain.
- In effect, biological warfare is using non-human life to disrupt — or end — human life. Because living organisms can be unpredictable and incredibly resilient, biological weapons are difficult to control, potentially devastating on a global scale, and prohibited globally under numerous treaties.
- The threat of bioterrorism is increasing as a result of the rise of technical capabilities, the rapid expansion of the global biotechnology industry, and the growth of loosely sophisticated networks of transnational terrorist groups that have expressed interest in bioterrorism.

**Measures needed to control Bioweapons:**

- Existing prevention strategies are insufficient to guarantee that biological weapons will not be used. Furthermore, it is clear that biological weapons are proliferating.
- **Awareness and education:**
 - ID professionals are called on every day to diagnose and treat patients with fever, pneumonia, rash, and flulike symptoms; therefore, it is the ID professional who would be among the clinicians most likely to recognize the diseases caused by biological weapons.
 - Professional educational and training curricula should be enhanced so that ID professionals are better capable of recognizing the diseases that would follow use of a biological weapon such as anthrax, plague, or smallpox.
- **Laboratory diagnosis:**
 - Should the recognition of an unusual disease or pattern of illnesses prompt consideration of possible biological weapon use, members of the ID community will be called on to advise upon the most rapid procedures for diagnostic confirmation of disease.
 - In anticipation of this, ID experts should become familiar with the processes by which either the hospital laboratory or the local or state health department, in consultation with the Centers for Disease Control and Prevention (CDC) as necessary, will perform diagnostic studies to implicate or exclude biological weapons use.
- **Systems for distributing therapeutics:**
 - Should a biological weapon use be confirmed, treatment and intervention strategies for the ill and for the exposed but not yet ill will be critical. Depending on the disease, antibiotics, and/or vaccines or other therapies, as well as quarantine, could be lifesaving.
- **Scientific research:**
 - The ID community already does research that seeks new strategies for diagnosis, prevention, or treatment for infectious disease.
 - Commensurate with this, the ID community might elect to encourage and reward basic science research efforts that seek to produce novel diagnostic technologies, preventive, or therapeutic interventions for the diseases caused by biological weapons.

Way forward for India:

The Indian government along with friendly nations need to pool their resources and make major investments in the research and development of state-of-the-art devices that are capable of instantaneously detecting lethal bacteria and viruses in the environment. Clinical labs capable of deploying cutting edge technologies need to be set up. Also, the production and stockpiling of new vaccines needs to be increased. A surveillance system should be set up nationwide that should be staffed with clinicians and veterinarians who are trained to identify a bioweapon attack immediately after such a weapon is unleashed. Advanced countries like the Netherlands and Israel have already initiated such steps. Consequently, a nationwide response plan against any bioweapon attack is in place.



Challenges to internal security through communication networks, role of media and social networking sites in internal security challenges, basics of cyber security; money-laundering and its prevention.

What do you understand by round tripping? Discuss the concerns associated and suggest ways to address them. (250 words)

Reference: [The Hindu](#)

Why this question:

In a major relief for New Delhi Television Limited (NDTV), the Supreme Court has quashed an income tax re-assessment notice issued by revenue authorities against the premier news broadcasting company. Thus the question.

Key demand of the question:

Explain the concept of round tripping and discuss the concerns associated and suggest ways to address them.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly define round tripping. Discuss the concerns associated and suggest ways to address them.

Body:

Round tripping refers to money that leaves the country through various channels and makes its way back into the country often as foreign investment. This mostly involves black money and is allegedly often used for stock price manipulation. Round tripping is often done through a series of transactions that don't have any substantial commercial purposes, which makes it fall within the trappings of GAAR. List down the concerns associated with round tripping. Detail upon the efforts being taken the government in this direction.

Conclusion:

Conclude by suggesting measures to tackle them.

Introduction

Round tripping refers to money that leaves the country through various channels and makes its way back into the country often as foreign investment. This mostly involves black money and is allegedly often used for stock price manipulation. It is also a money laundering and tax evasion technique.

Round tripping is often done through a series of transactions that don't have any substantial commercial purposes, which makes it fall within the trappings of **GAAR**.

Body

Round Tripping: Concerns

- Round-tripping is a method used to show an increase in volume in a thinly traded stock.
- It is also known as round-trip transactions or 'Lazy Susans' and is a characteristic of the New Economy companies.
- **It is a market-manipulation practice** used to misrepresent the number of transactions occurring on any given day. This leads to loss of tax-revenue to the governments.
- Companies used round-tripping to distort the market by establishing false revenue benchmarks, aiming to meet or beat the numbers.
- Round-trip trading **artificially inflates volume and revenues**, but in reality, it **adds no profit**.



- It is a form of barter that involves a company selling “an unused asset to another company, while at the same time agreeing to buy back the same or similar assets at about the same price.
- This process is sometimes **used as a means of increasing the apparent amount of sales and revenue generated** by the seller during a specific financial period.
- Round trip stock trading is one method that companies use to deceptively increase income. It is also a method used to show an increase in volume in a thinly traded stock. Most of the time, round trips occur when the person is a day trader.
- **SEBI** had recently issued a notice against listed firms including United Spirits, GMR, Unitech and Sterlite for investing in group companies through a foreign account held with UBS. The companies are alleged to have indulged in stock price manipulation and insider trading through this route.
- **Stakeholder interest:** If a company is under the regulator’s radar for round-tripping allegations, it implies the possibility of poor corporate governance. Putting money into such stocks may contain high risk of unravelling and eventual collapse.

Addressing problems of Round Tripping

- The government amended the **tax treaty with Mauritius in 2016**, removing the tax arbitrage on capital gains. Under **POEM (place of effective management) rules**, overseas subsidiaries are treated as domestic entities for tax purposes if they are controlled and managed from India.
- As per RBI notification, Indian company can’t acquire stakes in an offshore firm which has already invested in an Indian entity “under the automatic route”.
- The data under **Foreign Exchange Management Act of 1999 (FEMA)** indicates non-reporting or delayed reporting by many, including large companies, for both FDI and OFDI. It must be amended for monitoring and reporting by the companies.
- India must sign **information disclosure agreements with tax havens** such as Mauritius, Cyprus and such other countries to monitor round-tripping of funds.
- **Information exchange** will help with monitoring the investments especially post the extension of the automatic route to OFDI (Outward foreign direct investment).
- **More powers to RBI and SEBI regulators** for probing cases of round-tripping.
- Agreement on **stringent KYC norms** by the countries involved can help in tracking the route of investments and impose taxes accordingly.

It must also be ensured that investigation must not lead to harassment despite following the law of the land. Proper guidelines and clear laws can ensure Ease of Doing Business in India as well as attract investments from foreign companies and investors.

Conclusion

Round Tripping makes the government lose large amount of revenue. Round tripping is not regarded to serve any purpose apart from aiding in the evasion of tax in India. Round tripping is not prohibited under Indian laws as of now. It is, however, argued that such a practice severely impacts revenues from capital gains tax. India must go for taking the course of law, to ensure there is no evasion of tax.

Deliberate upon the case of ‘infodemic’ of misinformation and cybercrime amidst the COVID-19 pandemic.(250 words)

Reference: [Indian Express](https://www.indianexpress.com)

Why this question:



The author highlights the fact that it is time for the digital leaders to flatten the curve of the infodemic. Thus the question.

Key demand of the question:

Explain what is an infodemic and how does it lead to misinformation and cybercrimes; illustrate using the present case of COVID-19.

Directive:

Deliberate – Weigh up to what extent something is true. Persuade the reader of your argument by citing relevant research but also remember to point out any flaws and counter-arguments as well. Conclude by stating clearly how far you agree with the original proposition.

Structure of the answer:

Introduction:

Define what constitutes an 'Infodemic'.

Body:

From selling fake coronavirus cures online to a cyber-attack on hospitals' critical information systems, criminals are exploiting the COVID-19 crisis.

Infodemics are an excessive amount of information about a problem, which makes it difficult to identify a solution. They can spread misinformation, disinformation and rumors during a health emergency. Infodemics can hamper an effective public health response and create confusion and distrust among people. Explain then the importance of awareness, role of media, cyber security etc.

Conclusion:

Conclude that we are fighting an 'infodemic'. Our common enemy is a virus, but our enemy is also a growing surge of misinformation. So to overcome this virus, we need to urgently promote facts and science. We also need to promote hope and solidarity over despair and division.

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Conclusion:

Conclude that we are fighting an 'infodemic'. Our common enemy is a virus, but our enemy is also a growing surge of misinformation. So to overcome this virus, we need to urgently promote facts and science. We also need to promote hope and solidarity over despair and division.

Introduction:



Infodemic refers to an excessive amount of information concerning a problem such that the solution is made more difficult. Some experts believe that an infodemic, or an excessive amount of both correct and incorrect information, is spreading around the world. The worst-case scenario is that inaccurate information is potentially spreading faster than the virus itself, causing people to make poorly informed decisions. The WHO has declared misinformation and fear as some of the biggest challenges they face with the new coronavirus.

Body:

Challenges posed by Infodemic:

- WHO is leading the effort to slow the spread of the 2019 coronavirus disease (COVID-19) outbreak.
- But a global epidemic of misinformation—spreading rapidly through social media platforms and other outlets—poses a serious problem for public health.
- every outbreak will be accompanied by a kind of tsunami of information, but also within this information you always have misinformation, rumours etc,
- But the difference now with social media is that this phenomenon is amplified, it goes faster and further, like the viruses that travel with people and go faster and further.
- In a country such as India, where 400 million turn to a single messaging app for sharing news and stories about any and everything, more than 240 million are on Facebook and, often, using it as the predominant source of news, a critical mass of misinformation leads to misdirected behaviours.
- In times of crises, cybersecurity is critically important, he stressed, adding that a huge number of people under lockdown or movement restrictions are now working and studying remotely, making them susceptible to cybercrime.
- Some instances are hard to ignore some dominant narratives: Bioweapons origins of the coronavirus (false); Bill Gates was behind it (false); UNICEF's recommendations for warding off infection (unauthorised).

Measures taken up:

- Immediately after COVID-19 was declared a Public Health Emergency of International Concern, WHO's risk communication team launched a new information platform called **WHO Information Network for Epidemics (EPI-WIN)**, with the aim of using a series of amplifiers to share tailored information with specific target groups.
- WHO is also working closely with UNICEF and other international agencies that have extensive experience in risk communications, such as the International Federation of Red Cross and Red Crescent Societies.
- Social-media companies must sort, rank, and prioritize true and reliable information now more than ever.
- Web companies such as Pinterest have already introduced headers and links on their homepages with information about Covid-19, for example.

Way forward:

- Maintaining a system of fact-checking and tough standards regarding COVID-19 and weeding out messages, hashtags and transmitters that fail to meet them.
- The traditional media has a key role in providing evidence-based information to the general public, which will then hopefully be picked up on social media.



- For both social and conventional media, it is important that the public health community help the media to “better understand what they should be looking for, because the media sometimes gets ahead of the evidence”.
- We, as users, have a responsibility to find better ways to seek advice or substitutes for that dopamine rush of sharing a message instantly liked, commented on and shared by others.
- As a society, much like our global response to the coronavirus, we cannot rely on bottom-up decisions.
- We need decisive leadership from the top. In the digital nations we inhabit, Facebook, Facebook-owned WhatsApp, YouTube, Twitter, TikTok, it is imperative that the leaders of these nations act – and act now.
- It is about time, Mark Zuckerberg (Facebook/WhatsApp), Sundar Pichai (Google/YouTube), Jack Dorsey (Twitter) and Zhang Yiming (TikTok) made some tough calls, much like what their own political leaders have done.
- It would be more useful if instead of a coy “Forwarded” note, WhatsApp had a note that said, “For Reliable Medical Advice, Check Out the WHO” or some other trustworthy medical authority

Conclusion:

It is time to step up and help us all practise social media distancing by enforcing stricter standards. Beyond India, the entire developing world relies on your platforms for news about the pandemic. If there ever was a time to demonstrate vision and leadership, this is the time for the digital leaders to flatten the curve of the infodemic before it flattens the most vulnerable populations on the planet.

Who is to blame for the menace of rumors? Is it a policy issue or is it due to the lackadaisical approach by the social media companies or is it a combination of both?

Discuss. (250 words)

Reference: [The Hindu](https://www.thehindu.com/news/national/article3648447.ece)

Why this question:

The article discusses the threat of fake news to the efforts against COVID-19 and the necessary measures to tackle it. Thus the question.

Key demand of the question:

Explain the menace of rumors, discuss the reasons causing it and suggest measures to address them.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly discuss the context – Misinformation linked to supposed cures for COVID-19 and misleading claims have proliferated on social media networks.

Body:

To start with, explain the dangers posed by inaccurate information. Discuss the reasons that often lead to creation of such rumors – misinformation, explain whether it’s a policy issue or is it due to the lackadaisical approach by the social media companies or is it a combination of both. Take a balanced stand and give your opinion with suitable justifications.

Conclusion:

Conclude with way forward.

Introduction:



A rumour is an untested piece of information, opinion, report or story. Therefore, its veracity is doubtful. This unverified, ambiguous status is at the heart of a rumour, making it largely what it is. The moment an account is publicly demonstrated and accepted to be true or false, it ceases to be a rumour. In a sense then, a rumour's truth or falsity is irrelevant to its efficacy or impact.

Periods of social stress or natural disasters are fertile ground for rumours, which not only spread like wild fire but have grave consequences — scapegoating, social boycott, violence and arson, even lynching and murder.

Body:

Previous instances of rumour mongering during crisis:

- 1984 Pogrom against Sikhs
- For Centuries rumours were created against Jews, who were falsely accused of poisoning wells during wars, epidemics or civil unrest.
- In late 18th century Paris was replete with the rumour that the rich had distributed lethal, contaminated flour to the poor.
- It is no surprise then that during the current COVID-19 pandemic, the rumour mill has Muslims deliberately throwing infected Rs. 2,000 notes on the road or Muslim street vendors spitting on vegetables and fruits.

Factors that lead to menace of rumours:

- **Situations of information void or information overload:** Unable to satisfactorily make sense of their world in these uncertain contexts, humans become cognitively unstable and anxious. To meet their cognitive needs, they are forced to rely on bits and pieces of available knowledge, on a patchwork of half-truths, a rag bag of allusions that together provide a fragile, uncorroborated framework for interpreting events.
- **emotional anxiety:** when added to this cognitive framework, and one has a ready-made arena for rumours to flourish. An overheated mind burns all evidence that comes its way and surrenders to rumours, often in the service of emotional needs. During demonetisation, amidst despair and anxiety at losing their own money, the poor still found emotional satisfaction in the rumour that crores of rupees secretly stored in cash by the rich were rendered worthless.
- **Acute Crisis Situation:** In times of acute crisis, people lean on knee jerk speculation and prejudice. A group consisting of 'outsiders', already distrusted and disliked, becomes an easy target, ready to be blamed for the current mess
- **Polarized Societies:** In polarized societies, fear and vulnerability make rumour mongering easy.
- The desire to conform gets the better of a questioning mind. Rather than face sanction and ostracization for sticking out, people find it safer to emulate members of their group.
- Ironically, a belief gets entrenched after like-minded people discuss it among themselves. Discussion has a cascading effect; the more one talks about it, the more the biased rumour grows.
- A denial by a mistrusted outsider, no matter how great her expertise, only ends up solidifying rumours. Group dynamics in polarised societies works with a logic all of its own; every person is necessarily partisan. A neutral ground for impartial voices is simply unimaginable

Way forward:

- To transform the conditions that are conducive to rumours. This can reduce their efficacy.



- Depolarizing society, loosening the grip of prejudice and calmly addressing the collective anxieties and obsessions of a group are deterrents, but, alas, only in the long run.
- Regulatory laws to check rumours are imperative in the short run.
- The community leaders and democratically elected office holders can play an important role. They should vehemently deny injurious rumours and reduce its propagation and spread.
- Social media companies should support the government by tracking such rumours and quickly removing it from their platforms.

Social media often acts as a petri dish for rumors and delusions that can go viral and infect the minds of millions, examine and suggest what needs to be done to overcome the challenges of social media.(250 words)

Reference: [India Today](#), [Economic Times](#)

Why this question:

Few videos, purportedly of the gruesome incident of the Palghar mob lynching have gone viral on social media. The disturbing visuals have resulted in nationwide outrage with hash tags like Palghar and lynching trending on Twitter in India.

Key demand of the question:

One must bring out the evil side of the social media – explain in what way it often acts as a petri dish for rumors and delusions that can go viral and infect the minds of millions. Suggest measures to address the issue involved.

Directive:

Examine – When asked to ‘Examine’, we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Briefly explain the context, discuss the increasing use of social media with respect to rumors and delusions.

Body:

To start with, explain what constitutes social media. Discuss the role played by it; positives and negatives, explain how it is different from the print media and the regulated media. Discuss that Rumours tend to rise in times of uncertainty, Unlike more harmless rumors, conspiracy theories centre on a rejection of mainstream ideas and common sense in favour of a more sinister and secret narrative. Discuss some recent examples justifying the statement in question. Suggest measures to address the problem.

Conclusion:

Conclude with way ahead.

Introduction

The world has been battling a deluge of misinformation and influence operations for a long time now. The advent of internet, social media platforms and real time messengers has given a free run to criminals, miscreants, nation states and other motivated actors. In fact, society, today is experiencing something called an ‘information disorder’ where it has become extremely difficult to disambiguate truth from falsehood.

Body

Role of social media

There are more than **500 million internet users** in India and today social media is not only a subset of internet rather the internet itself.



Positives

- Social media has the potential to aid public servants in their work – not only for promotional activities, but also as a “grievance redressal” mechanism. **Eg:** Many outreach programs were possible during covid-19 pandemic after users complained on social media.
- **Outreach:** Given its characteristics to potentially give “voice to all”, immediate outreach and 24*7 engagement, Social Media offers a unique opportunity to governments (civil servants) to engage with their stakeholders especially citizens in real time to make policy making citizen centric.
 - Eg: PM Modi disseminating info on social distancing and government measures through Twitter.
- **Real Time engagement:** Social Media releases the shackles of time and place for engagement. They can connect policy makers to stakeholders in real time.
- **Managing Perceptions:** One of the big challenges for government is to avoid propagation of unverified facts and frivolous misleading rumors with respect to government policies. Leveraging these platforms can help to counter such perceptions and present the facts to enable informed opinion making. **Eg: Asking citizens to read information from trusted websites, downloading government apps etc.**

Misinformation through social media

- **Creating fear and Panic:** A small indiscretion of forwarding an unverified message can lead to loss of life or cause a serious disturbance of public order.
 - With governmental and public resources pushed to limits, it is incumbent upon the general public to perform diligence in their interactions with reference to the Pandemic.
 - On April 16, a group of villagers in Palghar district of Maharashtra dragged out three men out of their car and beat them to death on suspicion that they were thieves. The attack on the three took place amid a nationwide lockdown.
- **Communalizing the pandemic:** The Tablighi incident during the coronavirus pandemic added fuel to already tense environment in Delhi and elsewhere. News regarding the same circulated widely on social media, unabated, further giving the pandemic a communal color.
- **False remedies** such as distributing unchecked concoctions, medicines and herbs at egregious prices to unsuspecting innocent people online . It may lead to worsening the underlying conditions in people and endanger their lives.
- **Accountability issues:** Challenges with respect to fixing the liability of intermediaries. It is also difficult to trace the origin of fake news circulation.
- **Jurisdictional challenges:** Complications in jurisdiction as Facebook, twitter etc. operate as subsidiaries of foreign internet companies with their servers located outside India.
- **Anonymity:** Police officers have expressed concern over multiplicity of fake profiles. There is no accountability of a crime.
- **Encrypted Message:** Use of whatsapp to send and receive messages, concerns the government because the communications sent via such devices and applications are encrypted.



Measures to be taken

- **Strict Law enforcement: Section 505(1) of Indian Penal Code, 1860:** The punishment for making, publishing or circulating any statement, rumour or report which may cause fear or alarm to the public, or to any section of the public.
 - **Section 66D of Information Technology Act:** Whoever, by means for any communication device or computer resource cheats by personating. Punishment includes imprisonment of for a term which may extend to three years and shall also be liable to fine which may extend to one lakh rupees.
 - **Section 54 of the Disaster Management Act, 2005:** Whoever makes or circulates a false alarm or warning as to disaster or its severity or magnitude, leading to panic. Punishment is Imprisonment which may extend to one year or with fine.
- Ascertaining the source and origin of the message. If one is not sure of the authenticity and correctness of the message or its content, one may make attempts to be sure of the veracity of the matter before forwarding it to others.
- In case of any claims made in the message one has received, conduct secondary checks on google or other sites before disseminating it.
- If the message incites strong emotions, it is likely to be sent for such purposes. Any shocking or outrageous claim made needs to be verified before it is sent to others who may believe it completely.
- In case of the message containing videos or pictures, there is a possibility of them being edited or used out of context to mislead unsuspecting recipients. A simple reverse image search on google can reveal the original source and context of the picture. Any harm resulting from such forwarding can make the person doing so liable to legal consequences.
- Use factchecking services, there are many reputed factchecking sites, which help people to verify claims made on social media or messages which have gone viral. **Eg : Whatsapp checkpoint Tipline, The logical Indian.**
- Sometimes there would be obvious spelling, punctuation mistakes or other grammatical errors which can point out the inauthenticity of the message. One needs to develop a healthy scepticism towards content on social media.
- The recent initiative of WhatsApp's launching of a 'Coronavirus Information Hub' in partnership with International Fact-Checking Network (IFCN), World Health Organization (WHO), United Nations Development Programme (UNDP) and United Nations Children's Fund (UNICEF) is an appreciable move.

Conclusion

The state and its different enforcement apparatus have to remain ever vigilant in the online and virtual worlds to protect individuals and society from the lurking dangers of an **Infodemic**. This entails timely detection of content before it goes viral and causes widespread damage, taking it down with the help of social media platforms and intermediaries and tracing the sources of such mischief. Media outlets and the press also have an enhanced responsibility to make people aware and increase literacy about the menace of fake news and misinformation.



INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION

INSTA SECURE SYNOPSIS

MAINS 2020

GS-III

MAY 2020



Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

Discuss the critical role being played by Food Corporation of India in countering the challenges posed by COVID-19.(250 words)

Reference: [The Hindu](#)

Why this question:

The article presents the FCI's role in the pandemic crisis.

Key demand of the question:

Explain in detail the critical role being played by Food Corporation of India in countering the challenges posed by COVID-19.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Present a brief background of FCI and its functions.

Body:

The Food Corporation of India (FCI) has been set up under the Food Corporations Act 1964. In the initial decades of its inception, the FCI was praised for being at the forefront of India's quest for self-sufficiency in rice and wheat following the Green Revolution, managing procurement and stocking grains that supported a vast Public Distribution System (PDS). Then move onto explain the role of FCI in the ongoing pandemic crisis.

Conclusion:

Conclude with strategies for the FCI(take hints from the article) which would enable it to more effectively play its role in countering the challenges posed by COVID-19.

Introduction:

Food Corporation of India (FCI) was formed in 1960's and was part of larger plan directed toward food security and self-sufficiency. Other major institution was CACP. These two institutions along with MSP regime and Public distribution system were expected to work in tandem. FCI's responsibility was to procure, Store and discharge grains as per policy of the government. Over the time, as in other cases these institutions too failed to adapt to changing circumstances such as changing demands of economy. As a result, FCI now reels under chronic inefficiency through huge wastages, and storage cost of grains keeps on cumulating.

Body:

the critical role being played by Food Corporation of India in countering the challenges posed by COVID-19:

- Notwithstanding its dubious reputation, the FCI has consistently maintained the PDS, a lifeline for vulnerable millions across the country.
- Currently, in the middle of the COVID-19 pandemic, FCI with its buffer stocks holds the key to warding off a looming crisis of hunger and starvation, especially in regions where lakhs of migrant workers have returned home with little money or food.
- The FCI has already moved 3 million tonnes (post-lockdown) to States, including Uttar Pradesh, Bihar, West Bengal and Karnataka and those in the Northeast, where demand outstrips State procurement and/or stocks.



- The FCI has also enabled purchases by States and non-governmental organisations directly from FCI depots, doing away with e-auctions typically conducted for the Open Market Sale Scheme (OMSS).
- Given the extended lockdown, the FCI is uniquely positioned to move grains across State borders where private sector players continue to face formidable challenges.

However, in recent times, there have been many concerns over FCI:

- FCI's operations are regarded as expensive and inefficient. There are long-term concerns regarding the costs of food subsidy.
- The FCI has witnessed mounting debts which currently stands at an estimated ₹55 lakh crore in March 2020, in the form of National Small Saving Funds Loan.
- FCI faces serious storage problems and is plagued by the issue of shortage of modern storage facilities. In the 1970s and 1980s, poor storage conditions meant a lot of grain was lost to pests, mainly rats.
- There have been reports of widespread diversion of grains and high leakage losses.
- FCI has lacked a "pro-active liquidation policy" for excess stocks which leads to market distortion in some instances. The distribution of subsidised grains is sometimes blamed for depressing food prices and affecting farmers.
- Some experts have argued that given the increasing role of the market economy, the FCI seems to have long outlived its purpose.

Measures that FCI can take during times of pandemic:

- **Use of Roads for transportation:**
 - The FCI has long back recognized the road movement as better suited for emergencies and for remote areas.
 - However, in 2019-2020 (until February) only 24% of the grains moved by road.
 - FCI needs to increase the use of roads more imperatively to move grains with least cost and efforts to the remote areas where the need is greatest
- **Decentralized storage:**
 - In the current context, it would be useful for the State government and the FCI to maintain stocks at block headquarters or panchayats in food insecure or remote areas.
- **Fiscal Burden:**
 - The centre should release stocks over and above existing allocations under PDS and Pradhan Mantri Garib Kalyan Yojana, but at its own expenses rather than by transferring the fiscal burden to States.
- **Activating Vibrant Network:**
 - In many States, there is a vibrant network of self-help groups formed under the National Rural Livelihoods Mission (NRLM) which can be tasked with last mile distribution of food aid other than the PDS.
 - Consultative committees presumably exist already in each State to coordinate with the FCI on such arrangements.



- **First in, First out (FIFO) principle:**
 - Typically, the FCI's guidelines follow a first in, first out principle (FIFO) that mandates that grain that has been procured earlier needs to be distributed first to ensure that older stocks are liquidated, both across years and even within a particular year.
 - It is time for the FCI to suspend this strategy, which will enable movement that costs least time, money and effort.
- **Farmer Producer Organisations (FPOs):**
 - The FCI along with the National Agricultural Cooperative Marketing Federation of India Ltd. (NAFED) has required expertise to manage the logistics to help farmers across the country to reach out to consumers directly.
 - The FCI should consider expanding its role to support FPOs and farmer groups, to move a wider range of commodities including agricultural inputs such as seeds and fertilizers, packing materials

Conclusion:

The Shanta Kumar Committee recommendations however were criticized due to suggestions like limiting NFSA, cash subsidy, privatization of FCI despite suggesting useful reforms to reform FCI, PDS. A closer scrutiny in the recommendation is needed today in times of agricultural distress & drought prone years. The FCI needs to **overhaul its operations and modernise its storage**.

Discuss the importance and role of MSMEs in the Indian Economy.(250 words)

Reference: [Indian Express](#)

Why this question:

The article brings out the fact that Medium, Small & Micro Enterprises have been the focus of the government's relief package and in what way they are worst hit, thus forcing us to ponder upon importance and role of MSMEs in the Indian Economy.

Key demand of the question:

Discuss in detail the importance and role of MSMEs in the Indian Economy.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Define briefly MSMEs.

Body:

To start with explain the fact that MSMEs are worst hit. In India, capital is scarce and labour abundant. MSMEs are thought to have lower capital-output and capital-labour ratios than large-scale industries, and therefore, better serve growth and employment objectives. MSMEs are instruments of inclusive growth which touch upon the lives of the most vulnerable and marginalized. Explain the role of MSMEs in detail.

Conclusion:

Conclude with way forward.

Introduction:

Micro, Small & Medium enterprises (MSME) termed as “**engine of growth**” for India, has played a prominent role in the development of the country in terms of creating employment opportunities.



The government, in conjunction with the Reserve Bank of India (RBI), has now launched a series of measures to alleviate their distress.

Body:

Current crisis faced by MSME sector:

- The Covid-19 pandemic has left its impact on all sectors of the economy but nowhere is the hurt as much as the Medium, Small and Micro Enterprises (MSMEs) of India.
- All anecdotal evidence available, such as the hundreds of thousands of stranded migrant workers across the country, suggests that MSMEs have been the worst casualty of Covid-19 induced lockdown.
- MSMEs were already struggling — in terms of declining revenues and capacity utilisation — in the lead-up to the Covid-19 crisis.
- The total lockdown has raised a question mark on the existence of many primarily because these are not firms that have too much cash to wait out the crisis. That explains the job losses.
- According to a recent survey for “small and medium” firms in manufacturing, only 7% said they will be able to survive for more than three months with their cash in hand if their business remains closed.
- A big hurdle to restarting now is the lack of labour availability.

WHAT IT MEANS, HOW MANY, AND WHERE THEY STAND

CHART 1: DEFINITION OF MSME

| Classification | Manufacturing Enterprise* | Service Enterprise* |
|----------------|-----------------------------|--------------------------------|
| Micro | Up to Rs 25 lakh | Up to Rs 10 lakh |
| Small | Above Rs 25 lakh to Rs 5 cr | Above Rs 10 lakh to Rs 2 crore |
| Medium | Above Rs 5 cr to Rs 10 cr | Above Rs 2 cr to Rs 5 cr |

*Manufacturing Enterprise: investment in plant & machinery;
Service Enterprise: investment in equipment

CHART 2: ESTIMATED NUMBER OF MSMEs (IN LAKH)

| Activity category | Rural | Urban | Total | Share |
|-------------------|---------------|---------------|---------------|-------------|
| Manufacturing | 114.14 | 82.50 | 196.65 | 31% |
| Trade | 108.71 | 121.64 | 230.35 | 36% |
| Other services | 102.00 | 104.85 | 206.85 | 33% |
| Electricity* | 0.03 | 0.01 | 0.03 | — |
| All | 324.88 | 309.00 | 633.88 | 100% |

*Non-captive electricity generation and transmission

**CHART 3: ESTIMATED EMPLOYMENT IN MSME SECTOR (IN LAKH)**

| Broad activity category | Rural | Urban | Total | Share |
|-------------------------|---------------|---------------|----------------|-------------|
| Manufacturing | 186.56 | 173.86 | 360.41 | 32% |
| Trade | 160.64 | 226.54 | 387.18 | 35% |
| Other services | 150.53 | 211.69 | 362.22 | 33% |
| Electricity* | 0.06 | 0.02 | 0.07 | — |
| All | 497.78 | 612.10 | 1109.89 | 100% |

*Non-captive electricity generation and transmission

CHART 4: DISTRIBUTION OF ENTERPRISES CATEGORY-WISE (IN LAKH)

| Sector | Micro | Small | Medium | Total | Share |
|------------|---------------|-------------|-------------|---------------|-------------|
| Rural | 324.09 | 0.78 | 0.01 | 324.88 | 51% |
| Urban | 396.43 | 2.53 | 0.04 | 309.00 | 49% |
| All | 630.52 | 3.31 | 0.05 | 633.88 | 100% |

Potential of India's MSME sector:

- **Contribution to GDP:** The share of MSMEs in the country's gross value added is estimated to be about 32%.
- **Leveraging Exports:** It also contributes about 40% to total exports and 45% to manufacturing output.
- **Employment Opportunities:** It employs 60 million people, creates 1.3 million jobs every year and produces more than 8000 quality products for the Indian and international markets.
- **Diversity:** There are approximately 30 million MSME Units in India and is quite diverse in terms of its size, level of technology employed, range of products and services provided and target markets.
- **Fostering Inclusive Growth:** MSME is constructing inclusive growth in numerous ways through promoting non- agricultural livelihood at least cost, unbiased regional development, large female participation, and providing a protection against deflation.

The challenges and concerns associated with the growth of MSME sector:

- **Access to Credit:**
 - According to Economic Survey (2017-18), MSME sector faces a major problem in terms of getting adequate credit for expansion of business activities.
 - The Survey had pointed out that the MSME received only 17.4 per cent of the total credit outstanding.
 - Most banks are reluctant to lend to MSMEs because from the perspective of bankers, inexperience of these enterprises, poor financials, lack of collaterals and infrastructure.
 - According to a 2018 report by the International Finance Corporation, the formal banking system supplies less than one-third (or about Rs 11 lakh crore) of the credit MSME credit need that it can potentially fund



- most of the MSME funding comes from informal sources and this fact is crucial because it explains why the Reserve Bank of India's efforts to push more liquidity towards the MSMEs have had a limited impact.
- **Poor Infrastructure:**
 - With poor infrastructure, MSMEs' production capacity is very low while production cost is very high.
- **Access to modern Technology:**
 - The lack of technological know-how and financial constraints limits the access to modern technology and consequently the technological adoption remains low.
- **Access to markets:**
 - MSMEs have poor access to markets. Their advertisement and sales promotion are comparatively weaker than that of the multinational companies and other big companies.
 - The ineffective advertisement and poor marketing channels makes it difficult for them to compete with large companies.
- **Legal hurdles:**
 - Getting statutory clearances related to power, environment, labour are major hurdles.
 - Laws related to the all aspects of manufacturing and service concern are very complex and compliance with these laws are difficult.
- **Lack of skilled manpower:**
 - The training and development programs in respect of MSME'S development has been. Thus, there has been a constant crunch of skilled manpower in MSMEs

Other issues:

- Low ICT usage.
- Low market penetration.
- Quality assurance/certification.
- IPR related issues.
- Quality assurance/certification.
- Standardization of products and proper marketing channels to penetrate new markets.

Measures needed:

- Government of India and banks should design plans and measures to widen easy, hassle-free access to credit.
- The RBI should bring stringent norms for Non-Performing Assets (NPA) and it will help curbing loan defaulters and motivate potential good debts. Further, according to critics, the Credit Guarantee Scheme for MSME (CGTMSE) run by SIDBI is a growing contingent liability and needs to be examined with urgency
- Government should provide enhanced development and upgradation of existing rail & road network and other infrastructure facilities in less developed and rural areas to boost growth and development of MSMEs



- There should proper research and development in respect of innovative method of production and service rendering. Further, the government should promote and subsidise the technical know-how to Micro and small enterprises.
- Government should encourage procurement programme, credit and performance ratings and extensive marketing support to revive the growth of sick units.
- Skill development and imparting training to MSME workers is a crucial step to increase the productivity of the sector. The government should emphasise predominantly on skill development and training programs

Conclusion:

MSMEs being the growth engine of economy, there is a need to prepare a roadmap for sector in addition to the ad-hoc initiatives undertaken. Delineation of the objectives, vision, and mission is necessary to give clarity on the path to be treaded. An inclusive, sustainable vision to compete with the global MSMEs, by collaborating the industry groups, researchers, government and other stakeholders is the need of the hour.

In the age of globalization and FDI, what are the compelling reasons to think about Domestic Resource Mobilization? Discuss. (250 words)

Reference: Indian economy by Dutta and Sundaram

Why this question:

The question is from the static portions of GS paper I and based on the theme of mobilisation of resources.

Key demand of the question:

Explain the need and importance of domestic resource mobilisation in the days of globalisation and FDI.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Define what you understand by Domestic Resource Mobilization.

Body:

To start with explain that in low-income countries confronting widespread poverty, mobilizing domestic resources is particularly challenging, which has led developing countries to rely on foreign aid, foreign direct investment, export earnings and other external resources. Nevertheless, there are compelling reasons to give much more emphasis to DRM; vital to elevating economic growth, accelerating poverty reduction and underpinning sustained development, more congruent with domestic ownership than external resources etc.

Conclusion:

Conclude with importance of it in the contemporary world.

Introduction:

Mobilization of resources is all about how a government or governmental organization or a non-governmental organization can mobilize the material resources including finance to carry out its development projects or mission. For government, the mobilization of resources stands for collection of funds to allocate these resources to various development plans and schemes.

Body:

Importance of Domestic Resource Mobilization (DRM):

Telegram: <https://t.me/insightsIAStips>

Youtube: <https://www.youtube.com/channel/UCpocbcCX9GEIwaile4HLjwA>

Facebook: <https://www.facebook.com/insightsonindia>



In low-income countries confronting widespread poverty, mobilizing domestic resources is particularly challenging, which has led developing countries to rely on foreign aid, foreign direct investment, export earnings and other external resources. Nevertheless, there are compelling reasons to give much more emphasis to DRM.

- Greater reliance on DRM is vital to elevating economic growth, accelerating poverty reduction and underpinning sustained development.
- High-growth economies typically save 20-30 per cent or more of their income in order to finance public and private investment.
- DRM is potentially more congruent with domestic ownership than external resources.
- Foreign aid invariably carries restrictions and conditionality.
- FDI is primarily oriented to the commercial objectives of the investor, not the principal development priorities of the host country.
- DRM is more predictable and less volatile than aid, export earnings, or FDI.
- **Mobilization of resource is done through:**
- **Public sector:**
 - Public revenue generation for investment in social services and infrastructure.
- **Private sector:**
 - The private sector mobilizes the savings of households and firms through financial intermediaries, which allocate these resources to investment in productive activities.

Measures needed for DRM:

- **Broad-basing private investment** in infrastructure requires commitment and holistic efforts from both the Centre and the states.
- **Empower public institutions to drive transformation:**
 - Capable creditworthy public institutions are an essential prerequisite to attract private investment.
- **Rewire contracting frameworks:**
 - Expediting creation of a PPP think-tank institution as recommended by the Kelkar committee could help.
 - We should look beyond conventional build-operate-transfer models to annuity and investment-lite performance-contracting models.
 - This would require recalibrating risk-sharing, and reworking contracts with clear performance metrics.
- There is a pressing need for enhanced recapitalization of public sector banks (PSUs) and also divesting the ownership.
- The government must revise these specific schemes, designed to augment production for exports, to suit the changing global environment and ensure proper functioning.



- **Create supply-side enablers to deepen the infrastructure financing ecosystem:**
 - Stalled projects need to be dealt with steadfastly to attract private developers.
 - Building capacity to implement the Insolvency and Bankruptcy Code will be crucial.
 - Creating a diversified and resilient financing ecosystem to facilitate a shift from overreliance on bank-led financing.
 - **Strengthening bond markets** and expeditious deployment of capital under the National Investment and Infrastructure Fund can help.
- CRISIL said that the problem of stressed assets in the banking system to push the investment cycle.
- India would need to find innovative mechanisms to attract investments into infrastructure to sustain its growth.

Conclusion:

There is an urgent need to activate stalled projects and clean up balance sheets of corporate firms and the banking sector to revive the investment cycle. It is important to revive overall investment — especially in infrastructure — for balanced growth.

Do you think that that the Government's step to divert rice for the production of ethanol is a just decision while the poor are leaving hand to mouth in the country?

Analyse.(250 words)

Reference: [Indian Express](#)

Why this question:

The Union government had on Monday approved that surplus rice available with FCI can be used for converting into ethanol to manufacture alcohol-based hand sanitizers and also for blending with petrol. Thus the question.

Key demand of the question:

One has to debate over the fact that should India, a country with rampant poverty, hunger, and malnutrition, use food grains for making ethanol.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Present briefly the context of the question.

Body:

One can start deliberating on the fact and justify that diverting rice to produce ethanol during pandemic is unethical. Such diversion of food crops to produce biofuel was considered one of the reasons for the rise in food prices globally. Corn and other grain are also used in feedstock for poultry and cattle and is hence part of the food economy. It potentially deprives food to humans as well as livestock. At a time when there are fears of a steep fall in national income, a rise in unemployment, and an increase in food inflation due to supply bottlenecks, it is imperative that food security and food price stability be given the highest priority. Highlight the concerns point by point and discuss positives if any.

Conclusion:

Conclude with a fair and balanced answer.

Introduction:



Surplus rice available with the FCI is allowed to be converted to ethanol for utilization in making alcohol-based hand-sanitizers and for blending in petrol. Approval in this regard was recently given by the **National Biofuel Coordination Committee (NBCC)**. Ethanol produced from this will be used for utilization in making alcohol-based hand sanitizers and blending in petrol. Even sugar mills have simultaneously ramped up hand sanitizer manufacturing capacity to almost 100,000 liters per day to cater its rising demand following the coronavirus outbreak.

Body:

Ethanol, or ethyl alcohol, is a liquid that has several uses. **At 95% purity**, it is called **rectified spirit** and is used as **the intoxicating ingredient in alcoholic beverages**. At **99%-plus purity**, ethanol is used for **blending with petrol**. Both products are made from molasses, a byproduct of sugar manufacturing.

Rationale behind the move:

- The National Biofuel Coordination Committee (NBCC) took the decision which will lead to utilization of part of a **huge stockpile of 30.57 million tonnes (MT) of rice which is almost 128% more than the buffer stock and strategic requirement norms**.
- At present, the Food Corporation of India (FCI) has huge rice stock from previous years excluding the unmilled paddy lying with millers on behalf of FCI.
- Using surplus rice for ethanol will address the concern of about **750 million liters of grain-based distillery capacities lying idle**, due to the lack of feedstock.
- In India, the total capacity of grain-based distilleries is close to 2 billion liters, of which around 38% (750 million liters) was lying unused.
- The **National Policy on Biofuels, 2018** allows conversion of surplus quantities of food grains to ethanol when there is a projected oversupply of food grains.

Possible implications:

- In 2007-8, about 25 per cent of the corn produced in the US was used for biofuel production. In addition to cereals, oilseed crops like rapeseed, soyabean and sunflower were used for biofuel production. In 2018-19, an astounding 37.6 per cent of the corn produced in the US was used for making ethanol.
- Such diversion of food crops to produce biofuel was considered one of the reasons for the rise in food prices globally.
- Corn and other grain is also used in feedstock for poultry and cattle and is hence part of the food economy.
- India's position in the Global Hunger Index has slipped nine places. India was placed 102 among the 117 countries ranked in the index in 2019.
- The National Family Health Survey (NFHS-4) 2015-16, found that 38.4 per cent of children under five years are "stunted" (height for age), and 21 per cent are "wasted" (low weight for height). In fact, over a period of 10 years, wasting has increased from 19.8 per cent in NFHS-3 to 21 per cent in NFHS-4.

Concerns raised against the move:

- This move has been criticized on the grounds that how can the government waste food stock for fuel when the considerable number of the population doesn't have food and is suffering from malnutrition.



- On 26th March 2020, the government decided to give 5 kg wheat or rice and 1 kg of preferred pulses free of cost to 800 million people, under the National Food Security Act, 2013 (NFSA) in the wake of the Covid-19 pandemic.
- However, many poor people are unable to get the benefit out of it, due to loopholes in the PDS network.
- For example, a large chunk of ration card holders may not be eligible for the free grains, as they are not covered under the NFSA.
- The NFSA, based on the 2011 census, had not factored in the population increase in over nine years, leaving a huge number of people out of its ambit.
- About 85 per cent of rice is kharif crop, heavily dependent on monsoon. Despite the prediction of a normal monsoon, public interest demands that the basis for the projection of surplus of rice is disclosed. What happens if the monsoon projections go wrong? Will we have to import grain?

Way forward:

- Ethanol can be produced from other ingredients such as B and C heavy molasses, sugar, sugar syrup, and sugarcane juice.
- Ethanol has also been blessed with a low GST and enjoys relaxed conditions for inter-state movement if used for blending with petrol.
- Since the economy faces a bleak prospect due to the impact of COVID-19, the government should first use the food grains to meet the requirement of about 10 to 20 crore people without ration cards.
- It must provide rice to NGOs at PDS prices, for providing cooked food to migrant labour stuck in cities and it should provide an additional five kg food grains to the poor for six months instead of three months.
- If the Centre still thinks that the country will still have surplus rice, it must facilitate export to friendly countries which are suffering an adverse impact of COVID-19 on their economies.

The environmental values and the economic values often seem to be contradictory to each other. However, in the long term, only the integration of both the values can bring the well-being for the humankind. Elucidate.(250 words)

Why this question:

The question is premised on the fact that environmental values and the economic values must go hand in hand in order to achieve the well-being of humankind.

Key demand of the question:

Explain the importance and need for integration of environmental values and the economic values.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Economic expansion of human being has been seen as a challenge to the ecology and environment right from the ancient age.

Body:

Explain the given statement with suitable example. Debate between environment and economic value. need an integrated approach to human development by adopting means such as - Development of renewable energy, Development of environmental rule of law etc.

Conclusion:

Conclude with need for the integration of the two.

**Introduction:**

India has made a lot of progress in the last two decades, but we must sustain the growth engine to ensure increased incomes, improved livelihood and a better quality of life. Economic growth has positive impacts like increase in wealth/reduction in poverty, improved standards of living, health, education and infrastructure and technology. However, there are negative effects like health challenges, increase in income inequality, increased pollution and a depletion of natural resources

Body:**Development and Environment:**

- Development and environment are two sides of the same coin.
- On one hand people are concerned about the environment in which they live.
- Major issues like global warming, greenhouse effect, air and water pollution are increasing each day.
- On the other hand, to eradicate poverty and increase growth in the economy, development is mandatory.
- Without economic development a nation cannot come out of the vicious circle of poverty.
- As our population grows, finding a balance between economic advancement and consumption of natural resources is a vital question that India should address. Development without environment is meaningless.
- We need to save our resources for our future generations so that they can live in a healthy environment.

Some of the recent negative externalities on environment:

- Nearly 17,000 grown trees will be chopped off for redevelopment of central government accommodations in south Delhi.
- Trees have been felled regularly across the country to make way for concrete monstrosities.
- Between 2008 and 2017, nearly 20,000 thousand trees have been cut in Bengaluru to make way for flyovers, road widening and other projects.
- In Gurugram in 2016-17 alone close to 10,000 trees were cut.
- According to government data over the last 30 years, forests nearly two-thirds the size of Haryana have been lost to encroachments and industrial projects

Concerns posed:

- The current GDP estimates do not account for the gains/losses in natural capital.
- Identifying and quantifying the ecosystem services for the purpose of damage assessment is a difficult task in the absence of relevant data.
- Water scarcity, high levels of pollution, extreme weather phenomena and the regular occurrence of floods and droughts could strain an economy fighting to grow.
- Health challenges, increase in income inequality, increased pollution and a depletion of natural resources.
- Large economic growth adversely affects the environmental quality and economic welfare of individuals and households.
- Development policies give more priority to income and employment generation, implementation of pollution control policies is very poor.
- At present, the price of a commodity covers only the private cost of production, not the damage cost.



- This makes the commodity relatively cheaper leading to more demand and output, and more pollution and environmental damage cost.
- India has more environmental conflicts than any other country, according to Environmental Justice Atlas, an international database.
- Researchers have found that environmental governance in India is poor not because of laws but their pathetic implementation.
- Multiplicity of authorities for environmental management and poor coordination among them

Way forward:

Role of Enterprises:

- Production systems must become sustainable.
- Switching from non-renewable to renewable sources of energy and materials targeting cleaner production.
- Improving energy efficiency in industry is one of the most cost-effective measure.
- Maximising recycling and reuse of wastes.
- Industries across sectors must come together on a common platform to address the issues concerning economic development and environment protection.
- Market-based instruments such as pollution tax and tradable pollution permits must be carried out.

Role of Government:

- Policies need to be simplified to create an ecosystem for new sustainable businesses to flourish.
- ICT can help drive socio-economic achievements via e-health, e-government services and smart grids for utilities.
- Good environmental governance which limits exploitation of natural resources to sustainable levels.
- Our policy should not be based on the “pollute-first; clean-up-later” approach.
- We need to strengthen participatory processes such as public hearings in the environmental and forest clearance process.
- Developing and reporting measures of human well-being other than GDP that better account for environmental and social costs of resource use.
- The Green GDP is a step forward for India if it wishes to account for true economic growth and its holistic wealth.
- Strict environmental regulation may reduce environmental damage significantly.
- India should work with foreign governments and global organizations to find ways of subsidizing clean fuel and cleaning our rivers and aquifers.

Conclusion:

The transition to economic growth coupled with efficiency in natural resource use and its conservation can help India attain its goals of inclusive growth with sustainable development. The time has indeed come to add “swachh paani” and “hawa” to “roti-kapada-makaan-aur-bijli”, to begin our journey towards sustainable growth.

Discuss the issues involved in import dependent manufacturing industries, What needs to be done to ensure they tread the path of self-reliance in the country? (250 words)

Reference: [Indian Express](#)

Why this question:



The article talks about the issues facing the manufacturing industry in the country. It highlights the sectors dependent on imports and issues concerning them.

Key demand of the question:

Explain the issues involved in import dependent manufacturing industries, suggest solutions to address their concerns and elaborate on what needs to be done to tread the path of self-reliance.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain the current state of manufacturing sector in the country.

Body:

To start with, highlight the sectors that are import dependent. Talk about manufacturing sectors like – electrical and electronic industry, pharmaceutical industry etc. Discuss specific issues in these sectors – lack of flexibility in labour laws, high costs and low availability of land and high cost of electricity etc. Suggest solutions to address the problems.

Conclusion:

Conclude with way forward.

Introduction:

The Prime Minister recently brought up the importance of local manufacturing and consumption of locally produced goods, stating that Indians needed to become “vocal for local”. He hinted that the government would need to undertake major reforms in order for the Indian industry to play a major role in the global supply chain.

Body:

Sectors that heavily depend on imports right now and cannot immediately scale up production domestically:

- Electrical equipment such as smartphones and computers are a key part of India’s import bill.
- The value addition in India’s electronics industry is limited to mostly assembly, while the country depends on imports to access most of the primary and critical components used to make them, including printed circuit boards (PCBs).
- For instance, around 88 per cent of the components used by the mobile handsets industry are imported from countries like China, according to the Confederation of Indian Industry.
- Over 60 per cent of the country’s medical devices are imported as well.
- Other products heavily imported into the country are cells and modules used by the country’s solar power industry.

Sectors that partially depend on imports to make their finished products:

- India’s pharmaceutical industry is capable of making finished formulations, and also has domestic manufacturers of several key ingredients used to make them. However, the industry also imports some key ingredients for antibiotics and vitamins currently not manufactured in India.
- The country is currently trying to encourage domestic firms to make these key ingredients, known as fermentation-based APIs. However, this may take a few years.



- India imported around Rs 249 billion worth of key ingredients, including fermentation-based ingredients, in FY19, and this accounted for approximately 40 per cent of the overall domestic consumption, according to CII.
- Medical devices like ventilators also rely on imports of several crucial components like solenoid valves and pressure sensors.
- Some auto manufacturers depend on imports for various components, while the country's electric vehicles industry is dependent, "to a large extent" on Chinese imports for chemicals used to make cathodes and battery cells, it said.
- Local dyestuff units in India are also heavily dependent on imports of several raw materials, while specialty chemicals for textiles like denim are also imported, according to CII.
- For instance, when China initiated its lockdown of Wuhan earlier this year during the COVID-19 pandemic, nearly 20 per cent of India's dyes and dyestuff industry production was hit due to a disruption in raw material.

Issues with scaling up production in import dependent sectors:

- The manufacture of some of the key products that India imports such as semiconductors, displays and other very capital intensive electrical equipment may not be possible soon as manufacturing these requires large, stable sources of clean water and electricity.
- They also need a high degree of policy certainty as these require high upfront investments.
- Indian firms can however begin producing less sophisticated components if certain policy measures are taken
- The Indian industry faces much higher costs in inputs such as electricity and much higher logistics costs than Chinese firms.
- It costs Rs 4/kg for a shipment of cable to arrive at Mumbai from a city 300 km away from Shanghai but it costs around Rs 14/kg for that shipment to be transported from Mumbai to a factory in Noida.
- This is also true for fermentation based APIs, which Indian pharma executives claimed the country became less competitive in when China began receiving infrastructure and logistic support to produce and sell them at cheaper rates.

Policy measure does industry need for greater local production:

- A key issue holding back manufacturing in the country and a lack of flexibility in labour laws, high costs and low availability of land and high cost of electricity.
- Some states including UP and Madhya Pradesh have relaxed some labour laws with Karnataka likely to follow suit.
- It will be very important for the government to take initiatives and announce more relief packages.
- The government to provide cash infusions that allow companies to give workers jobs and buy raw materials.
- The government will also need to increase the insolvency limit for SMEs and MSMEs to 1 crore from 1 lakh.
- India's manufacturers could learn a lot from the IT sector's experience in promoting the large-scale development of s
- Continued focus on education will help attract foreign investment and also help the economy overcome the challenges.
- Favorable market access policies
- Investor's confidence must be improved.



- Improving physical infrastructure from transport systems to the power sector is essential.
- Enhancing the flexibility of labour regulations.
- FDI policy requires a review to ensure that it facilitates greater technology transfer, leverages strategic linkages and innovation.
- Attractive remuneration to motivate people to join the manufacturing sector

Conclusion:

Going forward, there is need for an industrial policy, an innovation policy and need to look at what the industries need in terms of making their infrastructure more efficient.

Inclusive growth and issues arising from it.

What are some of the practical ways by which countries can boost social inclusion as well as economic growth? Discuss in the context of India. (250 words)

Reference: Indian Economy- Uma Kapila.

Why this question:

The question is from the static portions of GS paper III.

Key demand of the question:

The answer expects elaboration on ways and means of social inclusion as well as economic growth.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Explain briefly what you understand by inclusive growth.

Body:

To start with explain that Inclusive growth means economic growth that creates employment opportunities and helps in reducing poverty. It means having access to essential services in health and education by the poor. It includes providing equality of opportunity, empowering people through education and skill development. Suggest methods by which countries can boost social inclusion as well as economic growth.

Conclusion:

Conclude with way forward.

Introduction:

Social inclusion is the process of improving the terms on which individuals and groups take part in society—improving the ability, opportunity, and dignity of those disadvantaged on the basis of their identity. Exclusion can rob individuals of dignity, security, and the opportunity to lead a better life.

Body:

Costs of social exclusion:

- **At the individual level**, the loss of wages, lifetime earnings, poor education, and employment outcomes are the commonest measures of costs. Social exclusion is often solidified through discrimination, which can have physical and mental health costs.
- **At the national level**, the economic cost of social exclusion can be captured by forgone gross domestic product (GDP) and human capital wealth. Exclusion or the perception of exclusion may



cause certain groups to opt out of markets, services, and spaces, with costs to both individuals and the economy.

- A recent International Monetary Fund (IMF) paper shows that the current gender gap in the labor force costs countries at the bottom half of gender inequality around 35 percent of GDP.
- A 2018 World Bank paper estimates that Africa alone lost \$ 2.5 trillion in human capital due to gender inequality and 11.4% of total wealth in 2014.
- Another study found that exclusion of the ethnic minority Roma cost Romania 887 million euros in lost productivity.

Steps taken by the government for Inclusive Growth:

The government has realized the importance of inclusive growth and has taken steps accordingly. Some of the steps taken by the government are:

- Sarva Shiksha Abhiyaan
- Right to Education
- Midday meal scheme
- MNREGA
- Housing for All
- Pradhan Mantri Gram Sadak Yojana
- Pradhan Mantri Jan Dhan Yojana
- National Social Assistance Programme
- National Health Mission
- Rashtriya Swasthya Suraksha Yojana
- Pradhan Mantri Jeevan Jyothi Bhima Yojana
- Skill India, Make in India and Digital India
- Right to Information
- Other initiatives like Payment Banks, Small Finance Banks.

When the social indicators of an individual and a society improves by social inclusion measures, it leads to improved economic growth as they start contributing in various ways. **World Economic Forum** has suggested **3 practical ways by which countries can boost social inclusion as well as economic growth:**

- First, countries should **increase public and private investment in their citizens' capabilities**, which is the most important way they can durably lift their rate of productivity growth.
- Second, governments, **together with employers' and workers' organizations, should upgrade national rules and institutions relating to work**. These influence the quantity and distribution of job opportunities and compensation, and thus the level of purchasing power and aggregate demand within the economy.
- Third, **countries should increase public and private investment in labor-intensive economic sectors** that generate wider benefits for society. These include sustainable water, energy, digital, and transport infrastructure, care sectors, the rural economy, and education and training.

Other ways:

- Research into the effects and causes of social exclusion.
- Educational and awareness campaigns on the needs of people who are socially excluded.
- To encourage service providers to adapt their services to meet their needs, or the public to generally be more accepting of, and engaging with, particular communities;



- regeneration activities to change and improve the social and economic circumstances of a community.
- providing a local network group, linking groups in an area concerned with different issues affecting a particular community to enable them to make a more effective and joined up approach.
- increasing or coordinating opportunities for particular communities to participate in society. For instance, decision making on certain aspects by local decision making groups like local governments.

Way forward for India:

- Indian government along with the state governments and local governments should continue to focus on eradicating poverty and achieving sustainable development in order to improve the lives of India's people.
- Through innovative partnerships with an international organization, civil societies, and private companies, inclusive and equitable growth can be targeted.
- Inclusive growth will help in the empowerment of vulnerable and marginalized populations, improve livelihoods, and augment skill-building for women.

Conclusion:

Inclusive growth is of vital importance to fight inequality in all aspects and promote holistic development of individuals in the country. Inclusive growth is necessary for the sustainable and holistic development of all sections of the society. For economic, social and political empowerment of its citizens, the core components of the Inclusive growth must be tackled.

“Economic growth is a precondition for inclusive growth”, Do you agree? Analyse.(250 words)

Reference: Indian Economy- Uma Kapila.

Why this question:

The question is from the static portions of GS paper III.

Key demand of the question:

Explain in detail in what way economic growth is a precondition for inclusive growth.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Present briefly the salient features of inclusive growth.

Body:

To start with explain the fact that the growth is inclusive growth when it is socially inclusive, regionally balanced, which enables every state to do better than in the past, which narrows the gap between different communities, which also brings in our concern for gender equality, upliftment of women, improving their educational condition and social status. Economic growth is a precondition for inclusive growth, though the nature and composition of growth has to be conducive to inclusion.

Conclusion:

Conclude with importance of it.

Introduction:

The concept of **inclusive growth focuses on equitable growth for all sections of society**. This involves ensuring that fruits of growth and development reach the poor and marginalized sections as



well. Inclusiveness is a multi-dimensional concept. Inequalities that include, social exclusion, discrimination, restrictions on migration, constraints on human development, lack of access to finance and insurance, corruption – are sources of inequality and limit the prospect for economic advancement among certain segments of the population, thereby perpetuating poverty

Body:

Economic growth is a precondition for inclusive growth, though the nature and composition of growth has to be conducive to inclusion.

- Inclusive growth is to include the poor and lagging socio-economic groups such as ethnic / tribal groups, weaker sections as well as lagging regions as partners and beneficiaries of economic growth.
- The Inclusive growth addresses the constraints of the excluded and the marginalised. It has to open up opportunities for them to be partners in growth.
- Inclusive growth should be non-discriminatory and favourable for the excluded. This implies that inclusive growth has to be broad-based in terms of coverage of regions, and labour-intensive in terms of creating large-scale productive employment opportunities in the economy.
- Inclusive growth is expected to reduce poverty faster in the sense that it has to have a higher elasticity of poverty reduction.
- Inclusive growth has to ensure access of people to basic infrastructure and basic services/capabilities such as basic health and education. This access should include not only the quantity, but also quality of these basic services.
- Inclusive growth should reduce vertical as well as horizontal inequalities in incomes and assets.

However, only economic growth does not automatically translate into widely shared gains. Policy choices matter: abject poverty has persisted despite rapid growth in several economies, while some poorer and slower-growing economies have been remarkably successful in alleviating extreme poverty and social deprivation. The relatively even distribution of income and wealth in several Asian “tiger” economies and, before them, in the Nordic countries, demonstrates that equality is associated with sustained strong economic performance. By contrast, high levels of inequality in other economies have coincided with volatile economic performance.

Way forward:

- Economic policies, particularly those aimed at fostering market integration, tend to impact on men and women differently, and development strategies should aim to promote gender and other forms of equality, in order not only to increase social welfare and facilitate the realization of human potential but also to improve the underlying performance of the economy.
- Policy makers will have to pay particular attention to the agricultural sector, public investments in the social sectors, and, most importantly, the employment content of growth in order to achieve inclusive development paths.
- In terms of social sector spending, public sector investments in education, training and health programmes allow countries to address different aspects of poverty and exclusion directly.
- Investments in social services can also boost aggregate demand that “crowds in” private investment.
- Cash transfers can support vulnerable groups, including single parents, children, older persons, and persons with disabilities or chronic illnesses, who may have few alternative sources of income.



- The most critical component of inclusive growth is the creation of decent jobs. Full, productive and decent employment is the most important source of income security and it paves the way for broader social and economic advancement, strengthening individuals, their families and communities.

Discuss some of the key elements of Inclusive Growth in India while highlighting the challenges associated with it.(250 words)

Reference: Indian Economy by Uma Kapila

Why this question:

The question is from the static portions of GS paper III.

Key demand of the question:

Students are expected to detail upon the key elements that constitute Inclusive growth and also bring out the challenges associated with it.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

First define what you understand by Inclusive growth.

Body:

To start with explain the significance of inclusive growth in short. Then move on to list the key elements that constitute it; Agriculture Development Industrial Development, Environment Protection, Poverty Reduction, Employment Generation etc. elaborate on each factor as to how they lead to inclusive growth. Discuss what are the challenges associated with it.

Conclusion:

Conclude with solutions and way ahead.

Introduction:

The concept of **inclusive growth focuses on equitable growth for all sections of society**. This involves ensuring that fruits of growth and development reach the poor and marginalized sections as well. Inclusiveness is a multi-dimensional concept. Inequalities that include, social exclusion, discrimination, restrictions on migration, constraints on human development, lack of access to finance and insurance, corruption – are sources of inequality and limit the prospect for economic advancement among certain segments of the population, thereby perpetuating poverty.

Body:

Challenges to inclusive growth:

- **Poverty alleviation** is one of the big challenges for India. Eradication of poverty in India is generally only considered to be a long-term goal. Poverty alleviation is expected to make better progress in the next 50 years than in the past, as a trickle-down effect of the growing middle class.
- **Increasing stress on education, reservation of seats in government jobs and the increasing empowerment of women and the economically weaker sections of society**, are also expected to contribute to the alleviation of poverty
- **Government schemes** should target eradication of both poverty and unemployment (which in recent decades has sent millions of poor and unskilled people into urban areas in search of



livelihoods) attempt to solve the problem, by providing financial assistance for setting up businesses, skill honing, setting up public sector enterprises, reservations in governments, etc.

- **Disparity**

- The disparity between -> Rich and Poor
- The disparity between -> Urban and Rural
- The disparity between -> Educated and Uneducated

- **Demography:** We have 550 million young people below 25 age, we have the ready workforce for the world, everything we do today must focus on this population, we need to provide them nutrition food, skills, and job opportunities to grow.
- **Improving the delivery of core public services:** The incomes rise, citizens are demanding better delivery of core public services such as water and power supply, education, policing, sanitation, roads and public health. As physical access to services improves, issues of quality have become more central.
- **Maintaining rapid growth while making growth more inclusive:** The growing disparities between urban and rural areas, prosperous and lagging states, skilled and low-skilled workers, the primary medium term policy challenge for India is not to raise growth from 8 to 10 percent but to sustain rapid growth while spreading its benefits more widely.
- **Developmental challenges:**
- **Expansion:** Expansion is happening every day in developing countries like India, but perhaps not happening in the pace we would like. We have roads but we need more roads likewise we need to expand energy, infrastructure, facilities, etc.
- **Excellence:** Leaving of our top 5 or 10% quality of our education, our services, our governance, is really not that so great, we must collectively work towards improving quality in everywhere.
- **Equity:** We need to make sure that the poorest to the poorer can indeed get the best education, health, jobs, and other facilities.
- **Social development** is possible through achieving Women Empowerment and eradicating the regional disparities. Though the Government is giving the women empowerment by giving special reservations, the women's advancement in India is still not matched the expectations for inclusive growth.

Measures needed:

- Lowering the incidence of poverty and inequality requires a comprehensive strategy.
- Important steps need to be taken like framing policies to improve health, nutrition and education.
- Labour market reforms and reforms of direct taxation will have redistributive effects on the system.
- Schemes like National Rural Employment Guarantee Scheme (NREGS), provide 100 days or more of employment at a wage determined by government are already in progress but there is a need to check the cost effectiveness of these schemes



- Reforms to plug the leakages in the PDS, introduction of GPS tracking, activating vigilance committees, must be undertaken across the country.
- Research needs to be carried out by government agencies to document the 'best practices' in the implementation of government schemes.
- Minorities and other excluded groups, including the poor in upper castes, also need special programmes to bring them into the mainstream.

Conclusion:

To achieve inclusiveness, all these dimensions need to be looked into. Institutional and attitudinal changes should be brought about though this will take time. Awareness about inclusiveness and empowerment is required to be created. Reducing poverty is to be taken as key element in our inclusive growth strategy and there has been some progress in that regard.

Government Budgeting. Investment models.

A mature PPP framework, along with a robust enabling ecosystem shall enable the Government to accomplish Nation building. comment.(250 words)

Reference: Indian Economy by Dutta and Sundaram

Why this question:

The question is from the static portions of GS paper IV.

Key demand of the question:

Explain the need for a mature PPP framework, along with a robust enabling ecosystem in accomplishing the goal of Nation building.

Directive:

Comment– here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

In short explain the importance of investment models in the nation building. PPP is an arrangement between government and private sector for the provision of public assets and/or public services. Public-private partnerships allow large-scale government projects, such as roads, bridges, or hospitals, to be completed with private funding

Body:

To start with explain what you understand by PPP. Explain the importance of it to the Indian economy. Explain that for a country to grow and increase its production investment is required. Private investment can be source from domestic or international market. Private investment can generate more efficiency by creating more competition, realization of economies of scale and greater flexibility than is available to the public sector. List down in detail the merits and demerits of PPP model.

Conclusion:

Conclude with need to embrace PPP model to accomplish the dream of Nation building.

Introduction:

Public Private Partnership means an arrangement between a government/statutory entity/government owned entity on one side and a private sector entity on the other. It is often done for the provision of public assets or public services, through investments being made and/or management being undertaken by the private sector entity, for a specified period of time. There is well defined allocation of risk between the private sector and the public entity. The private entity



who is chosen on the basis of open competitive bidding, receives performance linked payments that conform (or are benchmarked) to specified and pre-determined performance standards, measurable by the public entity or its representative.

Body:



Need for PPPs in nation building:

- Better infrastructure: It is a fact that most governments face the problem that public financing is not enough to bridge the gap between infrastructure need and available funds. In this respect, infrastructure development has to rely increasingly on private markets to leverage and mobilize capital.
- Risk sharing: The private sector is considered to be more proficient in resource acquisition and utilities deliverance than the government, and, therefore, it is further bolstering government's good fortune to impart the related risks to the private segment.
- Optimum allocation of resources: PPPs can help in the optimum allocation of public resources for the development of infrastructure. Though conventional models of public acquirement concentrate on accomplishing the most reduced forthright expenses in conveying infrastructural ventures infrastructural projects, PPPs concentrate on delivering cost-effectiveness over the duration.
- Innovations: Development is another imperative idea that the private segment can convey to public utilities. As a rule, people in the public sector may not be as inventive similar to the private area. The private division is constantly hunting down new items and utilities to expand its aggressive edge and to save costs.
- Aid in growth of other sectors: To the government, PPP frees up fiscal funds for other areas of public service and improves cash flow management as high upfront capital expenditure is replaced by periodic service payments and provides cost certainty in place of uncertain calls for asset maintenance and replacement.
- The catalyst for the economy: To the private sector participants, PPP provides access to public sector markets. If priced accurately and costs managed effectively, the projects can provide reasonable profits and investment returns on a long-term basis.
- More employment generation: Development of infrastructure will need manpower at various levels and hence it will generate more employment opportunities for the people.



- Improves the image of the country: There will be more development of better physical infrastructure and services through PPP and it will create a good impact on tourism and other enthusiast investors.
- Attract FDI: Scope for investment by the private sector in infrastructure will also provide the opportunities to foreign investors to participate and the financial crunch can be meted out easily. The better infrastructure is also a major boost to foreign direct investment (FDI).

Challenges faced by PPP in India

- Construction/implementation risk, arising from delay in project clearance; contractor default; environmental damage.
- Market risk, arising from insufficient demand; insufficient demand.
- Finance risk, arising from inflation; changes in interest rates; increase in taxes, Change in exchange rates.
- Operation and maintenance risk, arising from the termination of the contract; technology risk; labor risk.
- Legal risk, arising from changes in law; changes in title/lease rights; insolvency of developer/service provider; change in security structure.

Way Forward

- The success of Public-Private Partnership PPP to a large extent depends on optimal risk allocation among stakeholders, the environment of trust among stakeholders, robust institutional capacity to undertake grooming and implementation of PPP projects.
- Further to foster the successful implementation of a PPP project, a robust PPP enabling ecosystem including liquid and diversified financial institutions; sound regulatory and arbitration framework; mature developers and experienced consultants etc. is essential.
- To develop the PPP projects in India, the **Kelkar Committee** proposed some changes. Some of them are:
- The PPP model requires the involvement of a private partner to leverage financing and improve operational efficiencies. Therefore, state-owned enterprises or public sector undertakings should not be allowed to bid for PPP projects.
- PPPs should not be used by the government to evade its responsibility for service delivery to citizens. This model should be adopted only after checking its viability for a project, in terms of costs and risks.
- Further, PPP structures should not be adopted for very small projects, since the benefits are not commensurate with the costs.
- Risk allocation and management: Public-Private Partnership PPP contracts should ensure optimal risk allocation across all stakeholders by ensuring that it is allocated to the entity that is best suited to manage the risk. A generic risk monitoring and evaluation framework should be developed covering all aspects of a project's lifecycle.
- Strengthening policy and governance: The Prevention of Corruption Act, 1988 should be amended to distinguish between genuine errors in decision making and acts of corruption by public servants.
- Strengthening institutional capacity: A national-level institution should be set up to support institutional capacity building activities and encouraging private investments with regard to PPPs. Independent regulators must be set up in sectors that are going for PPPs.



- An Infrastructure PPP Project Review Committee may be set up to evaluate PPP projects. An Infrastructure PPP Adjudication Tribunal should also be constituted. A quick, efficient, and enforceable dispute resolution mechanism must be developed for PPP projects
- The government should notify guidelines for auditing of Public-Private Partnership PPPs, only enabling the review of government internal systems. Special Purpose Vehicles (private partners) should follow norms of corporate governance and financial disclosures as per the Companies Act, 2013.
- Strengthening contracts: The private sector must be protected against such loss of bargaining power. This could be ensured by amending the terms of the Public-Private Partnership PPP contracts to allow for renegotiations.
- PPP must not be a short cut only to save money or bridge fiscal gaps or transfer risks; it should be used to improve service quality or bring efficiency improvements.

Highlight the importance of rebuilding the village economy in the current times while throwing light on the relevance of gram Swaraj .(250 words)

Reference: [Hindustan Times](#)

Why this question:

The author brings out the dire need of ensuring the safety and the well-being of the poor and marginalized living in urban agglomerations in the current conditions.

Key demand of the question:

Explain the importance of rebuilding the village economy in the current times while throwing light on the relevance of gram Swaraj.

Structure of the answer:

Introduction:

Start by explaining the importance of village economies in general for the economic health of the nation.

Body:

Discuss the current situation; explain how large employment centers such as Mumbai, Delhi and Ahmedabad are struggling to contain the spread of the deadly virus. Discuss the issue of poor and migrants. Then discuss the concept of Gram Swaraj of Mahatma Gandhi and explain the applications of it in the current situation. His pioneering idea of Swaraj or self-rule emanated from the very foundation of the Indian society, its villages, and implied self-reliance. Gandhi envisioned his ideal village as a self-sufficient republic – independent of its neighbors for its own wants, and, yet, interdependent for those dependent on it.

Conclusion:

Conclude with importance.

Introduction:

The onset of the coronavirus pandemic has wreaked havoc across the world. India, apart from the pandemic faces another massive challenge of ensuring the safety and the well-being of its poor and marginalised living in urban agglomerations. Nearly one-fifth of India's labour force – about 100 million – are migrants. Rebuilding the village economy can enable people to stay in their communities.

Body:

Current scenario of migrants in the urban agglomerations of India:

- National Sample Survey Organisation, 2010 reported that about 30% migrants were working as casual workers and only 35% of migrant workers were employed as regular/salaried workers.



- Without having adequate social protection and safety measures, biased policies discounting the demands of millions of migrant workers working in various hazardous industries and mines, lack of basic minimum facilities, illiteracy compounded with social discrimination and on top of it, the recent COVID-19 pandemic have pushed these migrant workers to the margin.
- Large employment centers such as Mumbai, Delhi and Ahmedabad are struggling to contain the spread of the deadly virus.
- The problem gets further complicated for those who live in congested slums and ghettos where social distancing is at best a misnomer.
- Add to that, the poor and migrants are unemployed, and, in the immediate future, face an uncertain future.
- The post-lockdown images of migrant labourers walking back on feet or thronging bus and train stations caused a massive furore.
- Migrants are aware that, without work, they can't survive in cities.
- If they don't have work in their destination cities, they have no good reasons to stay away from the family.
- Most of them are employed in low-end, low-value, hazardous work, which is further compounded by a lack of identity and legal protection. For them, villages are still a better option, with a social security net.

The importance of rebuilding the village economy:

- Gram Swaraj – Gandhiji's talisman, the fruit of his life-long search for answers of India's many ills.
- His pioneering idea of Swaraj or self-rule emanated from the very foundation of the Indian society, its villages, and implied self-reliance.
- Gandhi envisioned his ideal village as a self-sufficient republic – independent of its neighbours for its own wants, and, yet, interdependent for those dependent on it.
- Migrants are aware that, without work, they can't survive in cities. In contrast, in their villages, they have a well-established food supply and free shelter.
- For migrants, in the current scenario, villages are still a better option, with a social security net.
- Rebuilding the village economy can enable people to stay in their communities.
- Livestock, fisheries, dairy, vegetables, fruit and food processing are more labour-intensive and high value-yielding.
- Small scale industries, local mills, cottage and home-grown products can make this happen if supported with an efficient distribution system and conducive laws.

Challenges faced by villages:

- There are only a few opportunities for them in villages, which prompted them to move out of the village in the first place, often leaving behind their families, to brave the harsh conditions of cities.
- They do this to make a life for themselves and support their families.
- Cities cannot do without them, and yet, their plight remains understated.

Measures undertaken so far to revive the village economy:

- To reopen the closed and defunct mills, especially those in the food business – the flour, oil and pulse mills.
- It's reviving small units such as dairies, and ensuring them security and support to employ the local workforce, and eventually, cater to foreign markets.



- The government is also trying to revive the micro, small and medium enterprises (MSME) sector, which has over 70 lakh units in the state – the largest share in the country.
- On Panchayati Raj Diwas (April 24th), the Prime Minister of India launched ‘Swamitva Yojana’ or Ownership Scheme to map residential land ownership in the rural sector using modern technology like the use of drones. The scheme aims to revolutionise property record maintenance in India.

Way forward:

- The state can effectively engage the self-help group (SHG) members by leveraging the collateral free credit of Rs 20 lakh extended to them as part of the Pradhan Mantri Garib Kalyan Yojana (PMGKY).
- There is a need to adopt a holistic approach and develop short- and long-term plans for migrants.
- After many decades of neglect in research and development, lack of market access, on-off policies for exports, and market distortions, the present adversity may be a timely opportunity for agricultural and allied sector.
- In line with the government of Uttar Pradesh, it can instruct the SHGs to concentrate on producing items/commodities that have local demand; **one-district-one-product model** could be followed.
- Using the locally available raw material, supply chain disruption can be addressed and demand creation can be planned for rural areas.
- Government should facilitate the credit linkage to these SHGs and agencies, including the Farmer Producer Organisations and Panchayats can be engaged in procuring these products with a minimum assured price and facilitating appropriate market linkages.
- Demand for additional 100 days of rural employment guarantee can also help the rural economy significantly.
- Large-scale plantation, horticulture, fishery-related activities can be taken up including regular activities under MGNREGS to create demand for jobs in rural areas.
- The government should also facilitate assured credit support to small rural enterprises.
- It can procure horticulture products from the doorstep of the farmers for a smooth supply chain after imparting required training to the migrant workers.
- As we embrace the knowledge era and focus on capacity building of rural youth, the opportunities in rural areas should, in principle, become higher than those in urban areas since the rural segment can now benefit from all three (agriculture, manufacturing and services) sectors of the economy.
- In the knowledge era, with **emphasis on capability and capacity building of rural youth** in terms of holistic education, appropriate technology and enhanced livelihood, there is a possibility for a more balanced distribution of income as well as population.
- This would need knowledge bridges to be built between cities and villages, and the creation of an ecosystem which has been conceptualised as a “**cillage**” — a synergistic combination of city and village.

Conclusion:

Rural economy would need support of a suitable policy framework and reforms in pricing policy, tax, market access, credit and rural infrastructure, like warehouses and cold storage. The next two years or so of how we learn to live with coronavirus can redesign the economy towards safer and more



sustainable production and consumption, with agriculture and the rural economy as its strength, rather than its weakness.

Major crops cropping patterns in various parts of the country, different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers Elaborate upon the prospects of transforming rural India with the help of digital technologies.(250 words)

Reference: weforum.org

Why this question:

The question is from the static portions of GS paper III.

Key demand of the question:

Explain the prospects of transforming rural India with the help of digital technologies in detail.

Directive:

Elaborate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Start by highlighting the fact that ICT is becoming the facilitator of socio-economic development in rural India with its obvious facilities by way of health, education, financial services and employment avenues, etc.

Body:

Explain what prospects digital technologies hold in general for India and direct the discussion to focus on its contributions to the rural India in particular. Explain how it can help the bridge gaps by providing 'e' and 'm' services. Discuss various offerings that ICT makes to the rural India – With respect to empowerment, enablement, market expansion etc. Comment on the Government steps to provide e-aid to farmers.

Conclusion:

Conclude with way forward.

Introduction:

Digital technologies can be interpreted broadly as “technologies that facilitate communication and the processing and transmission of information by electronic means.” It promises a fundamental change in all aspects of our lives, including knowledge dissemination, social interaction, economic and business practices, political engagement, media, education, health, leisure and entertainment. **The Fourth Industrial Revolution (4IR)** heralds an exponential pace of technological change, building on the digital revolution to combine technologies, spawn new ones, and transform systems, industries, countries – even society itself.

Body:

Evolving Internet in India:

- Commercial Internet services in India were launched in August 1995.
- The initial launch of Internet in 1995 was with dial-up access speeds of upto 9.6 kbps.
- The initial launch of Internet services was with a rate of Rs25, 000 for a 250-hour TCP/IP (Transmission Control Protocol/Internet Protocol) account applicable for commercial organizations (amounting to Rs100 per hour).



- The number of Internet users in India was expected to reach 450-465 million by June, according to the Internet and Mobile Association of India (IAMAI) and market researcher IMRB.
- Around 72% of Internet users in India are less than 35 years of age,
- 80% of all web traffic in India emanates from the mobile—second highest in the world, after Nigeria.
- Total number of telephone subscribers were 1,210.84 million as of 17 June, according to TRAI.
- Wireless accounted for 1,186.84 million subscriptions.
- Broadband subscribers stood at 301 million at the end of June, according to TRAI.

Digital technologies have emerged as a potent tool that can lead to socio- economic empowerment of Rural India:

ICT and agriculture:

The vast majority of poor people lives in rural areas and derives their livelihoods directly or indirectly from agriculture. Increasing the efficiency, productivity and sustainability of small-scale farms are an area where ICT can make a significant contribution. Farming involves risks and uncertainties, with farmers facing many threats from poor soils, drought, erosion and pests. ICTs can deliver useful information to farmers about agriculture like crop care and animal husbandry, fertilizer and feedstock inputs, pest control, seed sourcing and market prices

▪ **Digital technologies and agriculture:**

- The vast majority of poor people lives in rural areas and derives their livelihoods directly or indirectly from agriculture.
- Increasing the efficiency, productivity and sustainability of small-scale farms is an area where Digital technologies can make a significant contribution. Farming involves risks and uncertainties, with farmers facing many threats from poor soils, drought, erosion and
- Digital technologies can deliver useful information to farmers about agriculture like crop care and animal husbandry, fertilizer and feedstock inputs, pest control, seed sourcing and market prices.
- In April 2016, Modi launched eNAM (National Agriculture Market), an online platform for farmers that integrates agricultural markets online, allowing farmers and traders alike to view all Agriculture Produce Market Committee-related information and services, commodity arrivals and prices, and buy and sell trade offers, thus helping farmers bid for the best prices across markets. GOI also launched a crop insurance scheme, the Pradhan Mantri Fasal Bima Yojana (PMFBY) in 2016, which now covers 37 million farmers.
- Additionally, GOI is investing in mapping all of India's aquifers, and using technology to manage water demand. Quantifying the relationship between rainfall and groundwater levels under alternative modes of irrigation and farming should enable prioritization of prospective water and irrigation investments.



- Digitized land registration, mobile phones and 'Uberised' tractor services all are contributing to improved farm management. Digital India Land Records Modernisation Programme (DILRMP) is updating millions of land records, providing title guarantees and increased security of land tenure to farmers while stimulating land rentals by nonviable smallholders and land consolidation.
- **Digital technologies for Education:**
 - Moreover, appropriate use of Digital technologies in the classroom fosters critical, integrative and contextual teaching and learning; develops information literacy (the ability to locate, evaluate and use information).
 - Thus, it improves the overall efficiency of the delivery of education in schools and educational management institutions at the national, state/provincial and community level.
 - The use of Digital technologies in education aims to improve the quality of teaching and learning as well as democratize the access to education.
- **Digital technologies for Economic Development:**
 - Information and Communication Technology has a vital role in connecting the rural community to outside world for exchange of information, a basic necessity for economic development.
 - Effective use of ICT can demolish geographical boundaries and can bring rural communities closer to global economic systems and be of meaningful help to the underprivileged.
 - the Mahatma Gandhi National Rural Employment Guarantee Scheme, (MGNREGS), the largest in the world, guarantees up to 100 days of rural employment for those in need of employment at Rs100 (US\$1.5)/day. Using DBTs to pay beneficiaries has reduced transfer costs, waste and corruption – and sidestepping any possible misallocation of funds transferred from central to state to district to panchayats for distribution.
- **Employment Opportunities:**
 - Poor people in rural localities have lack of opportunities for employment because they often do not have access to information about them.
 - One use of ICTs is to provide on-line services for job placement through electronic labour exchanges in public employment service or other placement agencies
- **Digital technologies in e-Governance:**
 - The poverty can be adequately addressed by effective use of e-governance and ICT application in environmental management. Improved governance by using ICT can have direct impact in reducing poverty and improving the environment.
 - ICT can contribute in a large way in making government processes more efficient and transparent by encouraging communication and information sharing among rural and marginalized people.
- **Digital technologies in Capacity-building and empowerment:**



- Communities and farmer organisations can be helped through the use of ICTs to strengthen their own capacities and better represent their constituencies when negotiating input and output prices, land claims, resource rights and infrastructure
 - ICT enables rural communities to interact with other stakeholders, thus reducing social isolation.
 - It widens the perspective of local communities in terms of national or global developments, opens up new business opportunities and allows easier contact with friends and relatives. A role is also played by ICT in making processes more efficient and transparent.
 - It helps in making laws and land titles more accessible. Global Positioning Systems (GPS) linked to Geographical Information Systems (GIS), digital cameras and internet, help rural communities to document and communicate their situation.
 - Rural communities benefit from better access to credit and rural banking facilities.
 - Recent mobile banking initiatives offer further scope to reduce costs and stimulate local
 - The Indian AMUL programme automates milk collection and payments for its 500,000 members, thereby enhancing transparency of the milk volume and quality collected and ensuring fair payments to farmers.
- **Digital technologies and Service delivery mechanisms:**
- There is a huge gap between information residing in agricultural knowledge centres and rural communities.
 - At local level, multi-stakeholder mechanisms are important to make relevant information accessible to end users. Intermediary organizations have to connect rural communities to available Users will increasingly want tailor-made, quality answers to their questions.
 - In the Agricultural Clinics in India customers get answers within one to two days.
 - Mobile Q&A services are being piloted in India.
 - At national level, mechanisms need to be in place to ensure learning and information sharing.
 - PDS using new technologies. There is now far less pilfering thanks to the digitisation of 230 million ration cards, 56% of which are strengthened with a universal ID and Aadhaar. Several states have now installed electronic point-of-sale devices at FPSs to track sales of food grains to cardholders on a real-time basis. A much debated policy shift – in-kind cash transfers in place of food distribution – is also being facilitated by digital technology.
- **Digital technologies and Health:**
- Health care is one of the most promising areas for poverty alleviation.
 - Digital technologies are being used in India to facilitate remote consultation, diagnosis and treatment.



- Delivering health care with Digital technologies enables health care professionals and institutions to address the critical medical needs of rural communities, especially those in remote locations and those that lack qualified medical personnel and services.
- **Role of Digital technologies under climate change:**
 - Digital technologies can enable access to the set of resources in the event of climate change related shocks or disturbances.
 - Digital technologies provide access to relevant data and information that is first processed at an individual level, then facilitate communication and interaction between a wide range of stakeholders, and ultimately enable cooperation, which can translate into adaptive actions being implemented with the participation of a wide range of stakeholders.
 - ICTs can also speed up access to information.
 - This is particularly important when an acute climate related shock such as landslide or flood
 - Mobile based telecommunications networks allow rapid communication of information, thus improving the speed of disaster warning, response and recovery

Conclusion:

The use of Digital technologies tools help in strengthening social networks, empowerment and participation, as well as fostering productive processes at the local level through the provision of employment and skills, as well as support services for micro-enterprise activities. In rural communities of developing countries, with limited capacities and resources to respond to the effects of extreme natural hazards, drought, landslides, floods, and to the impacts of these events on local social systems (e.g. health, infrastructure, transportation, migration), Digital technologies tools (the potential of telecentres for disaster preparedness and response) are emerging as an area of increasing interest.

**Why it is important to integrate National and International agricultural markets?
Examine and also discuss the purpose of APMC Act and related Issues.(250 words)**

Reference: arthapedia.in

Why this question:

The question is from the static portions of GS paper III. It focuses on importance of integrating National and International agricultural markets, examine also the Purpose of APMC Act and the related Issues.

Key demand of the question:

Explain the importance of integrating National and International agricultural, markets, also examine the purpose of APMC Act and related Issues.

Directive:

Examine – When asked to ‘Examine’, we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Present in short the importance of agri markets in the rural regions of India.

Body:



To start with explain the purpose of APMC act, discuss the shortcomings of APMC in the past, and explain the model of APMC. Comment on the importance of integrating National and International agricultural markets. List out the concerns and challenges.

Conclusion:

Conclude with way forward.

Introduction:

Agricultural Produce Market Committee (APMC) is a statutory market committee constituted by a State Government in respect of trade in certain notified agricultural or horticultural or livestock products, under the Agricultural Produce Market Committee Act issued by that state government. There are about 2477 principal regulated markets based on geography (the APMCs) and 4843 sub-market yards regulated by the respective APMCs in India. The typical amenities available in or around the APMCs are: auction halls, weigh bridges, godowns, shops for retailers, canteens, roads, lights, drinking water, police station, post-office, bore-wells, warehouse, farmers' amenity center, tanks, Water Treatment plant, soil-testing Laboratory, toilet blocks, etc.

Following the Centre's directive to States to amend their Agricultural Produce Markets (APMC) Acts, the Gujarat government has promulgated an Ordinance expanding the purview of the Act to include livestock under agricultural produce and to provide better market access to farmers.

Body:

APMCs are intended to be responsible for:

- ensuring transparency in pricing system and transactions taking place in market area;
- providing market-led extension services to farmers;
- ensuring payment for agricultural produce sold by farmers on the same day;
- promoting agricultural processing including activities for value addition in agricultural produce;
- Publicizing data on arrivals and rates of agricultural produce brought into the market area for sale; and
- Setup and promote public private partnership in the management of agricultural markets

Issues posed by APMCs:

- **Monopoly of APMC:** Monopoly of any trade (barring few exceptions) is bad, whether it is by some MNC corporation by government or by any APMC. It deprives farmers from better customers, and consumers from original suppliers.
- **Cartelization:** It is quite often seen that agents in an APMC get together to form a cartel and deliberately restraint from higher bidding. Produce is procured at manipulatively discovered price and sold at higher price. Spoils are then shared by participants, leaving farmers in lurch.
- **Entry Barriers:** License fee in these markets are highly prohibitive. In many markets farmers were not allowed to operate. Further, over and above license fee, rent/value for shops is quite high which keeps away competition. At most places only a group of village/urban elite operates in APMC.
- **Conflict of Interest:** APMC play dual role of regulator and Market. Consequently, its role as regulator is undermined by vested interest in lucrative trade. They despite of inefficiency won't let go any control. Generally, member and chairman are nominated/elected out of the agents operating in that market.
- **High commission, taxes and levies:** Farmers have to pay commission, marketing fee, APMC cess which pushes up costs. Apart from this many states impose Value Added Tax.



- **Other Manipulations:** Agents have tendency to block a part of payment for unexplained or fictitious reasons. Farmer is sometimes refused payment slip (which acknowledges sale and payment) which is essential for him to get loan.

Taking these concerns into cognizance, Central Government appointed a working group which recommended a **Model APMC act**. However, the **model legislation** has actually given rise to a **conflict of interest**, as the APMC, which is a major player, is also the regulator/registering authority. There is reluctance on part of state governments to reform the APMC legislation, as it generates huge revenues. Some states have created entry barriers by prescribing either prohibitive license fees for setting up such markets, or the minimum distance between private markets and APMC markets. **Union Budgets of 2014-15 and 2015-16** had suggested the **creation of a National Agricultural Market (NAM)** following which **e-NAM** was launched on 14th April 2016 as a **Pan-India electronic trade portal to link APMCs across the States**.

Importance of integrating National and International agricultural markets

- The agricultural sector in India is progressively opening up to external trade, leading to interdependency between commodity prices across diverse markets.
- The country's food production has increased tremendously from just 51 million tonnes in 1950-51 to about 252 million tonnes in 2014-15. However, farm income did not grow much. This was also highlighted by the National Commission on Farmers (NCF) headed by MS Swaminathan.
- Recent incidents of farmers reportedly dumping their bumper produce of tomatoes and onions and emptying cans of milk into drains is evidence of it. Had the markets been integrated, the surplus produce would have been transferred to deficit regions.
- The seasonal spike in prices of perishable commodities that pushes up the food inflation cannot be addressed without market reforms.
- Production and marketing should march together in order to benefit farmers and consumers. Farmers need to be empowered to decide when, where, to whom and at what price to sell.
- Indian agricultural prices are not co-integrated with global agricultural prices in short run.
- Existing literature shows that our markets are not efficient, and thus they cannot respond to sudden shocks.
- Degree of openness data suggests that Indian agriculture sector has started opening up, but this is not visible in market integration for agricultural commodities.
- The correlation between global and domestic prices of agricultural commodities and changes therein depend upon many factors in accordance with the demand and supply conditions.

Way forward:

The measures needed in the Agricultural Marketing in India are

- It is imperative to bring agriculture marketing into the Concurrent or Union list to benefit farmers. This will guarantee remunerative prices to farmers.
- The Committee on Doubling Farmers' Income under the chairmanship of Ashok Dalwai justifies the recommendation saying marketing has no boundaries; this **necessitates a pan-India operation** to meet the demand across the country.
- NITI Aayog's **model Agricultural Produce and Livestock Marketing Act** should be implemented by the states. Further the provisions like facilitating single-point levy of taxes, promoting direct interface between farmers and end-users, and give freedom to farmers to sell their produce to whomsoever and wherever they get better prices.



- e-NAM is a good step in this way. Budget 2018 announced developed **GRAMS** which would be integrated to the e-NAM Structure.
- Promoting warehouse receipts, agro-processing and exports. Warehouse receipts will help farmers defer their sale immediately post harvest, when prices are at their lowest level.
- This will require a consolidation of farm produce, which can be successfully done through farmer-producer organisations.
- Agro-processing and trade will require investment in developing infrastructure.
- Existing agri-export zones need to be revisited and strengthened in this changing scenario.
- States alone cannot revamp the agricultural marketing sector, primarily due to paucity of funds and technology.
- Private investment on a massive scale needs to be invited to upgrade and build large storage and warehousing systems that are climate resilient.

Conclusion:

It is time to concede that **production and marketing** should march together in order to benefit farmers and consumers. Farmers need to be empowered to decide when, where, to whom and at what price to sell.

Elaborate on the key determinants of cropping pattern in India while presenting a spatial analysis.(250 words)

Reference: Indian Geography by Majid Hussain

Why this question:

The question is straightforward and is from the static portions of GS paper III.

Key demand of the question:

Explain key determinants of cropping pattern in India while presenting a spatial analysis.

Directive:

Elaborate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Briefly define what you understand by cropping pattern.

Body:

To start with, explain that the cropping patterns may be affected by several factors and interplay of these factors. Some of these include physical and technical factors, economic factors, government agrarian policy, improvements in technology, availability of agricultural inputs and facilities etc. Discuss the physical factors affecting cropping pattern, technical factors and input availability affecting cropping pattern, Economic Factors etc. Draw a map of India and present the spatial aspects of the pattern.

Conclusion:

Conclude with suggestions to address the issues.

Introduction:

Cropping pattern is a dynamic concept because it changes over space and time. It can be defined as the proportion of area under various crops at a point of time. In other words, it is a yearly sequence and spatial arrangement of sowing and fallow on a given area. In India, the cropping pattern determined by rainfall, climate, temperature, soil type and technology.

Body:

**Some of the most commonly followed crop patterns:**

- **Rice-Wheat:** UP, Punjab, Haryana, Bihar, West Bengal, Madhya Pradesh.
- **Rice-Rice:** Irrigated and Humid coastal system of Orissa, Tamil Nadu, Andhra Pradesh, Karnataka and Kerala.
- **Rice- Groundnut:** Tamil Nadu, Andhra Pradesh, Karnataka, Orissa and Maharashtra
- **Rice-Pulses:** Chhattisgarh, Orissa and Bihar.
- **Maize-Wheat:** UP, Rajasthan, MP and Bihar.
- **Sugarcane-Wheat:** UP, Punjab and Haryana accounts for 68% of the area under sugarcane. The other states which cover the crops are; Karnataka and MP.
- **Cotton-Wheat:** Punjab, Haryana, West UP, Andhra Pradesh, Karnataka, Tamil Nadu.
- **Soya bean-Wheat:** Maharashtra, MP and Rajasthan
- **Legume Based Cropping Systems (Pulses-Oilseeds):** MP, Gujarat, Maharashtra, Andhra Pradesh and Karnataka.

The key determinants of cropping pattern in India are: Cropping pattern of any region depends upon many factors

- **Physical and Technical Factors:**

- These include the physical characteristic as soil, climate, weather rainfall etc. In the dry regions where the rainfall is scanty and where there is high uncertainty of monsoons, the dependence is on jowar and bajra. Water logging areas cultivate rice.
- Cropping pattern also depend upon irrigation facilities. Where ever water is available, not only can a different crop be grown but even double or triple cropping will be possible.

- **Economic Factors:**

- Economic motivation is the most important in determining the cropping pattern of the country. Among the various economic factors affecting crop pattern, the following are important:
- **Price and Income Maximization:** Price variations exert an important influence on acreage shifts. The variation in the inter-crop prices led to shifts in acreage as between the crops.
- **Farm Size:** There is a relationship between the farm size and the cropping pattern. The small farmers are first interested in producing food grain for their requirements. Small holder therefore devotes relatively small acreage to cash crops than large holders.
- **Insurance against risk:** The need to minimize the risk of crop failures not only explains diversification but also some specific features of crop patterns.
- **Availability of Inputs:** Seeds, fertilizers, water storage, marketing, transport etc. also affect the cropping pattern.
- **Tenure:** Under the crop sharing system, the landlord has a dominant voice in the choice of the cropping pattern and this helps in the adoption of income maximizing crop adjustments.

- **Infrastructure facilities:**

- Irrigation, transport, storage, trade and marketing, post-harvest handling and processing etc



- **Government Policies:**

- The legislative and administrative policies of the government may also affect the cropping pattern. Food Crops Acts, Land Use Acts, intensive schemes for paddy, for cotton and oilseeds, subsidies affect the cropping pattern.
- MSP – farmers shifting to wheat, rice
- Green Revolution – skewed cropping pattern in Northern India towards wheat and rice from coarse cereals and pulses

- **Social factors**

- Food habits also play a role – East and South India prefers rice as staple food while it is wheat in North India.

Conclusion:

The cropping pattern in India has undergone significant changes over time. As the cultivated area remains more or less constant, the increased demand for food because of increase in population and urbanisation puts agricultural land under stress resulting in crop intensification and substitution of food crops with commercial crops

How does transportation affect agriculture? What are the problems associated with it? Elucidate. (250 words)

Reference: Indian Geography by Majid Hussain

Why this question:

The question is straightforward and is from the static portions of GS paper III.

Key demand of the question:

The question aims to analyse the important role played by transportation in the agriculture sector and the issues associated with it.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Briefly quote the significance of transport in the agri sector in general.

Body:

When analyzing transport of agriculture produce, it is identified that transport costs has critical role in recognizing the link between accessibility and agricultural development. Good transport system is critically important to competent agricultural marketing. For distribution of agriculture produce, road transport has vital role because it is the major means of transporting agricultural produce from the farms to the markets as well as to various urban communities. It is the only means by which food produced at farm location is transported to different homes as well as markets. Transport creates market for agricultural produce, improves interaction among geographical and economic regions and opens up new areas to economic focus. Explain the associated concerns or challenges. Suggest what needs to be done to overcome it.

Conclusion:

Conclude with way forward.

Introduction:



The story of an adequate farm management begins and ends with efficient and properly managed transport. Transport takes a very important place in every industry, including agriculture. In order to produce food, farmers need certain resources, such as seed, fertilizers, pesticides, packaging materials, and many others. Precisely because of that, transport is an essential aspect of crop production that enables delivery of agricultural resources to a farmer. Furthermore, transport is a burning component of post-harvest crop management. After all, every harvested crop needs to be transported, either directly from the field to the market, or to the packing house and storage.

Body:

In short, transport enables agriculture and emboldens the farmer to invest more and increase production. And without this transport system, large quantities of painstakingly farmed produce would be laid to waste. On the contrary, if an efficient transport system exists, and the agricultural produce is handled with care, the farmer can get the best possible returns.

Many farmers are cash-strapped and would like to dispose of the produce at the earliest. This means that even if the harvest is plentiful, the farmer can still be left in the lurch if the product cannot be reached beyond the boundaries of his town. His produce also needs to reach the consumer at a reasonable price and within a reasonable time.

Importance of transportation for agriculture in India:

- In India, less than one percent of the 105 million tons of perishable goods are transported via the 30,000 reefer vehicles that ply its roads. And the loss due to this amounts to Rs. 1 lakh crore.
- At the all-India level, the proportions of the produce that farmers are unable to sell in the market are 34 per cent, 44.6 per cent, and about 40 per cent for fruits, vegetables, and fruits and vegetables combined,” finds the Ashok Dalwai committee on Doubling of Farmers’ Income.
- This means, every year, farmers lose around Rs 63,000 crore for not being able to sell their produces for which they have already made investments.
- In the absence of robust and sustainable logistics mechanisms more than half of fruits and vegetable produce end up as waste even before they arrive in the market, said the National Horticulture Board four years ago.

Some of the modes of agricultural transport and the problems associated with it are as follows:



| Mode of transport | Advantages | Disadvantages |
|-------------------|---|---|
| Road | <ul style="list-style-type: none"> • Ideal for short distances; in that case, it's relatively cheap and fast enough • Loading and unloading is possible almost at any destination | <ul style="list-style-type: none"> • Expensive and less efficient for longer distances • Potential problems with traffic jams • Significantly contributes to air pollution |
| Rail | <ul style="list-style-type: none"> • Suitable for large quantities of goods that need to be transported on a long distance • Less dependant upon adverse weather conditions (such as heavy rain, snow, and fog) | <ul style="list-style-type: none"> • Less flexible than road transport mode (the infrastructure is not set everywhere, unloading and loading can be practiced only where it's allowed) • Expensive when practiced for short distances |
| Water | <ul style="list-style-type: none"> • Relatively cheap and efficient way of transporting large quantities of goods, as well as for long distances | <ul style="list-style-type: none"> • Relatively slow • The cargo can be loaded only in places with a suitable port |
| Air | <ul style="list-style-type: none"> • The fastest mode of transport • Efficient for long distances | <ul style="list-style-type: none"> • The most expensive • Not suitable for short distances |

Way forward:

- The significance of an efficient and modest marketing system is important to rural transport services (RTS) and infrastructure to speed up development.
- Adequate and cheap transport facilities so that farmer is able to reach Mandi rather than disposing it off at his village only.
- Enabling policies need to be put in place to encourage the procurement of agricultural commodities directly from farmers' fields and to establish effective linkage between the farm production and the retail chain and food processing industries.
- In India, the road network provide link between farms and market and secondly, transport equipment carries agriculture produce. The efficiency of road transport depends on the type of road provided.
- The Indian Railways with its Pan-India network is the optimal and preferred choice for movement of horticultural produce.
- About 1.9 per cent of the perishable fruits and vegetables are transported through rail, while 97.4 per cent of the produce is transported through roads. This ratio needs to shift in favour of rail network.
- An investment in creating a robust post-harvest storage and transportation by investing Rs 89,375 crore will also create over 3 million jobs.
- And a majority of which will be at the village level, thus empowering the local, rural economy.

Conclusion:

Transport is considered to be an important aspect in improving agricultural efficiency. It improves the quality of life of individuals, structures a market for agricultural productions, makes interaction possible among geographical as well as regions and opened up new areas to economic focus.



Evaluate the constitutional right of freedom of trade for Indian farmers. Do you think their freedom to market their produce at a place of their choice has been compromised in the country? Discuss. (250 words)

Reference: [The Hindu](#)

Why this question:

The question aims to evaluate the constitutional right of freedom of trade for Indian farmers and its true realization in the country.

Key demand of the question:

Explain the issues farmers have been facing in realizing their constitutional right of freedom of trade.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Start by discussing importance of Freedom for farmers to trade their produce.

Body:

Indian Farmers sell their products at Local Market, APMC, and MSP. Explain in what way the Essential commodities Act, 1955 and APMC Acts of States are the major reasons for the decline of rights of Farmers to sell their produce at the price of their choice. Mention the difficulties faced by farmers initially, acts hindering their marketing freedom. Suggest solutions to address the issues.

Conclusion:

Conclude with way forward.

Introduction

A study on agricultural policies in India by the **Indian Council for Research on International Economic Relations-Organisation for Economic Co-operation and Development (2018)**, concluded that the **restrictions on agricultural marketing** amounted to ‘implicit taxation’ on farmers to the tune of **₹45 lakh crore** from 2000-01 to 2016-17.

The restrictive trade and marketing policies being practised with respect to agricultural prices have substantially eroded the incomes of farmers.

Body

Challenges faced by farmers to market their produce

- **Restrictive Laws:** The **Essential Commodities Act, 1955**, and the **Agricultural Produce Market Committee (APMC) Acts** of the States are the principle sources of violation of the rights of farmers to sell their produce at a price of their choice.
 - These two laws severely restrict the options of farmers to sell their produce. Farmers continue to be the victims of a buyers’ market.
 - This is the principal cause of their exploitation.
- **Contradictory Objectives**
 - India’s agriculture policies have had multiple mandates, including a **production imperative** (national food security), a **consumer imperative** (keeping food prices low for a large low-income population), and a **farmer welfare imperative** (raising farmer’s income).



- Tensions between these mandates have resulted in costly, contradictory policies whose costs have been increasingly borne by farmers, the government purse, and the natural environment.
- **Lower income:** Their farm incomes are at the **mercy of markets, middlemen and money lenders**.
 - For every rupee that a farmer makes, others in the supply chain get much more.
 - Both farmers and consumers are the sufferers of the **exploitative procurement** and marketing of farm produce.
- **Consumer Oriented Policies:** Whenever there is a price rise in any agricultural commodity, the government imposes restrictions on exports to protect Indian consumers.
 - It creates hindrances for farmers taking advantage of high prices in foreign markets.
 - This, coupled with the Essential Commodities Act (ECA), has meant **lower private investment in export infrastructure** such as warehouses and cold storage systems.
 - This lack of storage infrastructure compels farmers to go for **Distress sale**.

Recent measures taken to alleviate farmer issues

- **Agri-Infrastructure:** The agricultural cooperative societies, farmer producer organizations (FPOs), and start-ups will be given funds worth ₹1 lakh crores to encourage farm-gate infrastructure.
 - This is to develop cold chain storage and other post-harvest management infrastructure at the farm gate and aggregation points.
 - Recently announced package has approximately ₹4 lakh crore support for farming and allied sectors, aimed at **improving infrastructure and enhancing credit support**.
- **Legislative reforms: The Essential Commodities Act, 1955**, will be amended to de-regulate cereals, edible oils, oilseeds, pulses, onion, and potato.
 - Reforms in the Agri-Marketing are to be given serious concern to provide adequate choice to farmers for selling their produce at fair prices.
 - Laws to bring in **Contract farming** can help establish forward and backward linkage for agriculture and realisation of better farm incomes. It will help with modern technology adoption as well.
 - **APMC laws** will be amended, so that farmers will be free to sell their produce anywhere, even to private players directly. This will encourage more **private mandis to be set up**, where farmers will get better price for their crops without being victim to cartelization.
 - The above three reforms will create all India market for farmers to sell their produce.
- **Support to animal husbandry and fisheries:** The fishermen will be allocated ₹20,000 crore under **PM Matsya Sampada Yojana**.
 - This underlines the need for **diversifying the income sources of farmers**.



- The fish production is expected to grow more than 70 lakh tonnes over 5 years with this fund allocation.
- The beekeeping segment has been assigned ₹500 crores.
- This will augment income sources especially for the tribal people who live on minor forest produce. Skill development in bee-keeping has also been a major focus in recent times.

Way Forward

- While allowing several buyers to directly access the produce from the farmers, a strong and effective network of **Farm Producers' Organisations should be created** to enhance the **bargaining power of farmers**.
 - This will ensure that individual farmers are not exploited.
- Freeing up input prices to market levels, or charging an optimum cost pricing for fertilisers, power, agri-credit, and canal waters fees.
- Channelizing the resulting savings for expenditures on investments in agricultural R&D, irrigation, marketing infrastructure, building value chains by involving Farmer Producer Organisations (FPOs) and linking farms to organised retail, food processing, and export markets.
- **Direct income transfers to farmers'** should be promoted by leveraging the trinity of **Jan Dhan–Aadhaar–Mobile (JAM)** to reduce the leakages and pilferage.
- The Model Land Lease Act, 2016 offers an appropriate template for the states and UTs to draft their own piece of legislations, in consonance with the local requirements and adopt an enabling Act
 - In remote dry areas, leasing land to solar or wind power companies could provide farmers with relatively higher and steadier incomes.
- Robust agriculture exports will increase the demand for India's farm output (and hence, incomes of farmers).

Conclusion

It is time to allow the farmers to sell their produce anywhere, in return for the highest bidder. All stakeholders should be taken on board while revising restrictive agri-marketing laws. The reforming of laws will not only help farmers get better income but also help consumers who are also most hit by the current slowdown and pandemic. The target of achieving **Doubling Farmers income by 2022** will be closer to being successful.



Issues related to direct and indirect farm subsidies and minimum support prices; Public Distribution System- objectives, functioning, limitations, revamping; issues of buffer stocks and food security; Technology missions; economics of animal-rearing.

Do you think the current pandemic poses the right opportunity to put India's agri-marketing and PDS system on a more efficient path? Examine.(250 words)

Reference: [Indian Express](#)

Why this question:

The author Ashok Gulati brings to us a detailed overview of the opportunity that the current pandemic has brought to the PDS system of the country.

Key demand of the question:

Explain the opportunities that the COVID-19 pandemic has brought to the PDS system and India's agri marketing system and what needs to be done to encash the same.

Directive:

Examine – When asked to 'Examine', we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Briefly explain the existing structure of Indian agri markets and the PDS system.

Body:

To start with, highlight the fact that despite initial disruptions in supply lines, India has somehow managed to feed its large population of 1.37 billion. There have been no large-scale food riots and no major flaring up of food prices for consumers. Talk about the large scale reforms in agri-marketing as well as in the public distribution system (PDS) that are required. Take hints from the article and explain the dos and don'ts. Highlight the significance of the opportunity that India has right now in this sector and what Indian policy makers should actually do.

Conclusion:

Conclude with way forward.

Introduction

Despite initial disruptions in supply lines, India has somehow managed to feed its large population of 1.37 billion. There have been no large-scale food riots and no major flaring up of food prices for consumers.

Body

The nationwide lockdown resulted in a collapse in demand, forcing farmers to throw away, re-plough or feed their cattle with perishable produce like vegetables, flowers, poultry and milk.

Reforms needed Agri-Marketing and PDS system

- **Market reforms:** It is time to open channels for direct buying from farmers/farmer producer organisations (FPOs). Any registered large buyer, be it processors or retail groups or exporters must be encouraged by providing them with a license, that is valid all over India.
 - **Eg: Karnataka passed an ordinance to amend the APMC Act.** With this ordinance farmers will no longer be bound to the more than 160 APMC markets in the State and they can sell their produce to private players as well.



- **Exempt from cess/tax:** Farmer produce should be exempted from any market fee and other cesses as they will not be using the services of the APMC market yards.
- **E-NAM** can flourish if grading and dispute settlement mechanisms are put in place.
- **Private mandis** with modern infrastructure need to be promoted in competition with APMCs.
- Another reform pertains to the possibility of another legislation to promote **contract farming** and **linking it to futures commodity markets**.
- **Public Distribution System:** On the PDS front, we need to move towards cash transfers that can be withdrawn from anywhere in the country.
 - Government is also in process of implementing **One Nation One Ration Card** that will help the migrants immensely in accessing their benefits all over India and have food security during the time of crisis.
- **Stimulus to Agriculture:** It is an opportune moment to strengthen the farm gate infrastructure.
 - Laws to bring in **Contract farming** can help establish forward and backward linkage for agriculture and realisation of better farm incomes. It will help with modern technology adoption as well.
 - Bee-keeping and fisheries (aquaculture and mariculture) needs to be given impetus to ensure alternate sources of income during non-agricultural season.
 - Infrastructure such as **cold storage and Kisan Rail** will help in preservation of perishables and maintain quality during transport.
- **The Essential Commodities Act, 1955**, that controls trade and commerce of certain commodities will be amended to help realize better prices for farmers by letting them choose their buyers and through deregulation of some crop items.

Significance of opportunity in India's agri-market and food sector

- **Growth and prosperity:** Agriculture still engages India's largest workforce, with nearly 48% population.
 - And it may be the only sector that registers a respectable growth this year as almost all other major sectors may plummet into negative territory.
 - This will help absorb the shock of the coronavirus on **extreme poverty and malnutrition**.
 - With majority migrant workers returning back to their native states, it is time to focus on "Doubling farm income" with even more vigour.
- **APMC and market reforms:** APMCs' jurisdiction would be limited to their respective markets and they can levy cess only on transactions within the market area.
 - Private entities can set up their markets/market committees, which will attract investment in infrastructure and offer farmers competitive remuneration.
 - The **new unified trading licence** will let traders participate in markets all over the state and they can buy directly from farmers **without having to pay APMCs a fee**.



- **Providing cash in the hands of farmers** will help create more demand as the economists have been suggesting, and for the farmers it will also provide them with some resources to plan for the sowing of paddy crop in the days to come.
- **Better inter-state movement** of agricultural commodities will help in creating linkage between deficit and surplus states. Meanwhile it'll help revive the supply chains and the ancillary activities in the process (transport, warehousing etc.)

Conclusion

The farm sector has been the worst hit and the same time also the most essential and crucial sector of the economy that needs handholding. The major problem in agriculture is not production but marketing. The APMC markets are monopolistic, rent-seeking, they charge high rates of commission. Thus, the marketing reforms will provide better avenues for farmers to sell their produce and at the same time ensure food security for Indians, especially those in the lower strata.

Analyze in detail the provisions for the agricultural sector under the Atmanirbhar Bharat Abhiyan that was launched recently. (250 words)

Reference: [Economic Times](#)

Why this question:

The third tranche of the Atmanirbhar Bharat Abhiyan has listed measures to deal with critical infrastructure gaps and long-pending governance issues that plague the farm sector. Thus the question.

Key demand of the question:

The question is straight forward and aims to assess the benefits that the Atmanirbhar Bharat Abhiyan would render to the agriculture sector in the country.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Briefly explain the coming of Atmanirbhar Bharat Abhiyan into action.

Body:

To start with, explain the provisions given by the finance minister to the agri sector in the Atmanirbhar Bharat Abhiyan. Straight away discuss the provisions made for the agri sector in the tranche. Explain the benefits that it would render and how it would help the sector become self-reliant. Point out to challenges if any while suggesting solutions to the same.

Conclusion:

Conclude with way forward.

Introduction

The recent fund allocation of **Rs 1 lakh crore** under the third tranche of **Atmanirbhar Bharat Abhiyan** underpins the importance of infrastructural development in the agriculture sector and allied activities, especially in local supply systems.

This fund comes as a breather for the farmer producer organisations (FPOs), farmer cooperative societies, agri-entrepreneurs and start-ups which want to integrate and access these facilities within the vicinity of their farmgate and aggregation points.

Body

Provisions for agricultural sector under Atmanirbhar Bharat



- **Food Enterprises:** The announcement of **Rs 10,000 crore funds** for Food Micro Enterprises, which will benefit 2 lakh micro enterprises/ startups is a welcome step.
 - This will strengthen the food micro-enterprises/startups who are facing multiple issues like limited access to capital, lean workforce, vulnerability to sudden market changes, low-risk appetite and high dependency on supply chains.
 - These enterprises can go global with their specialty products such as **saffron in Kashmir, ragi in Karnataka and Makhana in Bihar.**
- **Agri-Infrastructure:** The agricultural cooperative societies, farmer producer organizations (FPOs), and start-ups will be given funds worth ₹1 lakh crores to encourage farm-gate infrastructure.
 - This is to develop cold chain storage and other post-harvest management infrastructure at the farm gate and aggregation points.
- **Fisheries:** The fishermen will be allocated ₹20,000 crores under PM Matsya Sampada Yojana. This is being done to boost the fishery segment. The fish production is expected to grow more than 70 lakh tonnes over 5 years with this fund allocation.
- **Livestock:** To ensure **100% vaccination** of cattle, buffalos, sheep, goats, and pigs, a fair amount of **₹13,000 crores** has been allocated.
 - **Animal husbandry** infrastructure has gained a ₹15,000 crore under the Atmanirbhar Bharat Scheme.
- **Medicinal plants:** To carry out the efficient promotion of herbal cultivation, ₹4,000 crores have been allotted.
 - It is expected to boost herbal cultivation in an area of 10 lakh hectare in 2 years.
- **Bee-keeping:** The beekeeping segment has been assigned ₹500 crores. This will augment income sources especially for the tribal people who live on minor forest produce. Skill development in bee-keeping has also been a major focus in recent times.
- **Market reform:** The Essential Commodities Act, 1955, will be amended to de-regulate cereals, edible oils, oilseeds, pulses, onion, and potato.
 - Reforms in the Agri-Marketing are to be given serious concern to provide adequate choice to farmers for selling their produce at fair prices.

Shortcomings

- **Repackaging of existing schemes:** The third tranche of reforms for Agri-sector was replete with additions to existing schemes or reiterations of the government's commitment to certain programmes.
- **No immediate relief to farmers:** The missing item from the third tranche were measures which could provide immediate relief to farmers that have been hit hard by the curbs on movement and transport of goods. There is no component of compensation in the package either.
- Agri-Economists like **Ashok Gulati** have criticised government for not raising the PM-KISAN money to 10,000 to aid farmers for the coming cropping season.

Conclusion



There is a greater need to create a better trade facilitation framework which can help farmers to make effective decisions for selling his produce and support during the entire transaction. Therefore, the need of the hour is to develop infrastructure, which will not only support the local supply systems but also help capitalise on high demand, high price markets at distant locations.

Do you think the reforms proposed for agricultural sector under the realm of Aatmanirbhar Bharat Abhiyaan ensure better price realization for farmers? Elucidate. (250 words)

Reference: [The Hindu](#)

Why this question:

The question is amidst the farm sector tranche that was announced by the finance minister recently under the Aatmanirbhar Bharat Abhiyaan.

Key demand of the question:

Explain the possibility of the package given to the farm sector in ensuring price realization to the farmers.

Directive:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

The pandemic Covid19 has highlighted the persistent and deep rooted problem of Indian agriculture system, thus the context of the question.

Body:

Students must remember that the question is not about the scheme the question is about how the scheme helps the farmer for price realization. Thus one has to discuss the possible positives that the scheme could bring to the farm sector and mention associated challenges if any.

Conclusion:

Conclude with what more needs to be done and in what way one particular scheme may not suffice to aid price realization and the approach needs to be multi-pronged.

Introduction

The Centre's objective of using the COVID-19 crisis to usher in an **Atmanirbhar Bharat** saw the Finance Minister, focus the third tranche of announcements on farm sector reforms. The centrepiece was the promises of **three legal reforms to ease up agriculture marketing** and the reinforcement and expansion of certain schemes that had been announced by the Centre in the past.

Body

Advantages of the reforms proposed for Agriculture Sector

- **Food Enterprises:** The announcement of **Rs 10,000 crore funds** for Food Micro Enterprises, which will benefit 2 lakh micro enterprises/ startups is a welcome step.
 - This will strengthen the food micro-enterprises/startups who are facing multiple issues like limited access to capital, lean workforce, vulnerability to sudden market changes, low-risk appetite and high dependency on supply chains.
 - These enterprises can go global with their specialty products such as **saffron in Kashmir, ragi in Karnataka and Makhana in Bihar.**



- **Agri-Infrastructure:** The agricultural cooperative societies, farmer producer organizations (FPOs), and start-ups will be given funds worth ₹1 lakh crores to encourage farm-gate infrastructure.
 - This is to develop cold chain storage and other post-harvest management infrastructure at the farm gate and aggregation points.
 - Given that the lack of adequate cold-storage facilities continues to extract a high price on farmers and the agrarian economy by way of post-harvest losses, especially in perishables, the targeted outlay is a welcome step.
- **Fisheries:** The fishermen will be allocated ₹20,000 crore under PM Matsya Sampada Yojana.
 - This is being done to **boost the fishery segment**. The fish production is expected to grow more than 70 lakh tonnes over 5 years with this fund allocation.
- **Livestock:** To ensure **100% vaccination** of cattle, buffalos, sheep, goats, and pigs, a fair amount of **₹13,000 crores** has been allocated.
 - **Animal husbandry** infrastructure has gained a ₹15,000 crore under the Atmanirbhar Bharat Scheme.
 - It will augment farm income and **boost household revenue of 2/3rd rural families**.
- **Medicinal plants:** To carry out the efficient promotion of herbal cultivation, ₹4,000 crores have been allotted.
 - It is expected to boost herbal cultivation in an area of 10 lakh hectare in 2 years.
 - Farmers can cultivate on their fallow land and utilise additional income as social security.
- **Bee-keeping:** The beekeeping segment has been assigned ₹500 crores. This will augment income sources especially for the tribal people who live on minor forest produce. Skill development in bee-keeping has also been a major focus in recent times.
- **One nation one market reform: The Essential Commodities Act, 1955**, will be amended to de-regulate cereals, edible oils, oilseeds, pulses, onion, and potato.
 - Reforms in the Agri-Marketing are to be given serious concern to provide adequate choice to farmers for selling their produce at fair prices.
 - Laws to bring in **Contract farming** can help establish forward and backward linkage for agriculture and realisation of better farm incomes. It will help with modern technology adoption as well.
 - APMC laws will be amended, so that farmers will be free to sell their produce anywhere, even to private players directly. This will encourage more private mandis to be set up, where farmers will get better price for their crops without being victim to cartelization.
 - The above three reforms will create all India market for farmers to sell their produce.

Concerns and challenges still remain

- **Law must not be repealed:** The Economic Survey 2020, had recommended jettisoning the “anachronistic” **Essential commodities Act (ECA)**.



- But the law has nonetheless remained a vital tool in the government's armoury for protecting consumers from irrational volatility in the prices of essentials by tamping down on black marketeers and hoarders.
- **Affect food prices:** While the **ECA Act's** provisions do have scope for an overzealous bureaucracy to harass even an honest exporter, who may have paid a fair price to the farmer and stocked produce for shipment overseas, total deregulation for foodgrains is fraught with the risk of future inflationary food price spikes.
- **Market reforms:** The other two proposals related to APMC are also of concern.
 - The first reform seeks to **bypass the APMC regime** through a central law that would allow farmers the freedom to **sell across State borders**, the other proposes a framework for farmers (**Contract farming**) to enter into **pre-sowing contracts** that would purportedly help assure them of offtake volumes and prices.
 - Both the changes, once enacted, **could privilege market forces without** necessarily safeguarding **food security**. Surely, it would be in no one's interest to throw the baby out with the bathwater.
- **Lack of immediate relief:** The government has failed to provide compensation and relief to farmers for the losses suffered during the lockdown, primarily because it lacks the fiscal space.
 - Political scientists pointed out that while the governance reforms of Essential commodities Act and agricultural marketing **are good long-term measures**, yet the much-spoken **Jan Dhan, Aadhaar and Mobile trinity was not of much use to** address the distress of the poor.

Conclusion

Along with the long-term measures envisioned by the Centre under the Atmanirbhar Abhiyaan, it must be ensured that the farmers be given enough liquidity to manage the crisis due to lockdown and slump in demand. States must coordinate to ensure the supply chain for agri-produce is functioning at all times, while realising better farm incomes.

Explain the Contributions of Livestock Sector to Indian Economy.(250 words)

Reference: *Indian Geography by Majid Hussain*

Why this question:

The question is straightforward from the static portions of GS paper III.

Key demand of the question:

Explain in detail the contributions of Livestock Sector to Indian Economy.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Briefly explicate what constitutes the livestock sector in the country, quote some relevant and latest facts.

Body:

To start with, explain that about 20.5 million people depend upon livestock for their livelihood. Livestock contributed 16% to the income of small farm households as against an average of 14% for all rural households. Livestock provides a livelihood to two-third of the rural community. It also provides employment to about 8.8 % of the population in India. Then discuss the importance of



animals as an efficient and economical means of food production. Discuss what needs to be done to augment the sector. Suggest the policy measures that exist in this direction.

Conclusion:

Conclude with way forward.

Introduction

Economic Survey 2020 noted that livestock sector has grown at a compound annual growth rate of **7.9 per cent** during last five years. Livestock income has become an important secondary source of income for rural families and has assumed an important role in achieving the goal of doubling farmers' income.

Body

Livestock Data: India

- The total number of cattle in the country is 192.49 million in 2019 shows an increase of 0.8 per cent.
- **Small Ruminant Sector:** Sheep and goat are collectively known as small ruminants.
 - India supports 16.1 per cent of the world's goat population and 6.4 per cent of its sheep (FAO).
- **20th Livestock Census:** India is the world's highest livestock owner at about 535.78 million.
 - First in the total buffalo population in the world – 109.85 million buffaloes.
 - Second in the population of goats – 148.88 million goats.
 - Second largest poultry market in the world.
 - Second largest producer of fish and also second largest aquaculture nation in the world.
 - Third in the population of sheep (74.26 millions)
 - Fifth in in the population of ducks and chicken (851.81 million)
 - Tenth in camel population in the world – 2.5 lakhs

Contributions of Livestock Sector to Indian Economy

- **Employment:** According to NSSO's 68th Round Survey on Employment and Unemployment, 16.44 million workers were engaged in the activities of farming of animals, mixed farming, fishing and aquaculture.
- **Largest Milk Producer:** India is the largest producer of milk in the world.
 - Milk production in the country was 188 million tonnes in 2018-19 with a yearly growth rate of 6.5 percent resulting in increased per capita availability to 394 grams per day.
- **Income:** About 20.5 million people depend upon livestock for their livelihood. Livestock contributed **16% to the income of small farm households** as against an average of 14% for all rural households.
 - Livestock provides livelihood to two-third of rural community. As per the 70th round of NSSO, livestock rearing is a principal source of income to 3.7 per cent of the agricultural households.



- Livestock sector contributes **11% GDP and 25.6% of total Agriculture GDP**.
- **Food:** The livestock products such as milk, meat and eggs are an important source of animal protein to the members of the livestock owners. The per capita availability of milk is around 375 g / day; eggs is 74 / annum during 2017-18.
- **Social security:** The animals offer social security to the owners in terms of their status in the society. The families especially the landless which own animals are better placed than those who do not.
- **Draft:** Bullocks are the back bone of Indian agriculture. Despite lot of advancements in the use of mechanical power in Indian agricultural operations, the Indian farmer especially in rural areas still depend upon bullocks for various agricultural operations.
 - The bullocks are saving a lot on fuel which is a necessary input for using mechanical power like tractors, combine harvesters etc.
 - Pack animals like camels, horses, donkeys, ponies, mules etc are being extensively used to transport goods in different parts of the country in addition to bullocks.
 - In situations like hilly terrains mules and ponies serve as the only alternative to transport goods.
 - Similarly, the army has to depend upon these animals to transport various items in high areas of high altitude.
- **Dung:** In rural areas dung is used for several purposes which include fuel (dung cakes), fertilizer (farm yard manure), and plastering material (poor man's cement).
- **Fisheries Sector:** The sector provides livelihood to about 16 million fishers and fish farmers at the primary level and almost twice the number along the value chain.
 - **Share in Agricultural GDP and export:** The sector accounts for **58 percent of GDP from agriculture**, forestry and fishing.
 - Also, the sector is one of the major contributors of foreign exchange earnings with India being one of the **leading seafood exporting nations** in the world.
 - **Fish Production:** The total fish production in the country was 13.42 million metric tonnes (MMT) during 2018-19. (Marine fisheries- 3.71 MMT and Inland fisheries- 9.71 MMT)

Challenges faced by the Livestock sector in India

- **Productivity:** Improving the productivity of farm animals is one of the major challenges. The average annual milk yield of Indian cattle is 1172 kg which is only about 50 per cent of the global average.
- **Diseases:** The frequent outbreaks of diseases like **Foot and Mouth Diseases, Black Quarter infection; Influenza, etc.** continue to affect livestock health and lowers productivity.
- **Greenhouse Gases:** India's huge population of ruminants contributes to greenhouse gases emission. Reducing greenhouse gases through mitigation and adaptation strategies will be a major challenge.
- **Loss of indigenous breeds:** Crossbreeding of indigenous species with exotic stocks to enhance the genetic potential of different species has been successful only to a limited extent.



- **Limited Artificial Insemination** services owing to a deficiency in quality germplasm, infrastructure and technical manpower coupled with poor conception rate following artificial insemination have been the major impediments.
- **Less credit:** The sector received only about **12 per cent of the total public expenditure on agriculture and allied sectors**, which is disproportionately lesser than its contribution to agricultural GDP. The sector has been neglected by financial institutions.
- **Meat production and market:** Likewise, slaughtering facilities are inadequate. About half of the total meat production comes from un-registered, make-shift slaughterhouses. Marketing and transaction costs of livestock products are high taking 15-20 per cent of the sale price.

Measures by government to improve livestock sector

- **Rashtriya Gokul Mission (RGM):** To undertake breed improvement programme for indigenous breeds so as to improve the genetic makeup and increase the stock.
- **E-Pashu Haat Portal:** This portal is for connecting breeders and farmers regarding availability of quality bovine germplasm.
- **National Livestock Mission:** IT is for intensive development of livestock, especially small livestock along with adequate availability of quality feed and fodder.
- **Livestock Health & Disease Control Scheme:** Assistance is provided for prevention and control of animal diseases like Foot and Mouth Disease (FMD) etc.
- **Dairy Development:** For strengthening infrastructure for production of quality milk, procurement, processing and marketing of milk and milk products through the following dairy development schemes.
- **Disease Protection of Livestock:** For livestock protection, the diagnostic kits against Japanese Encephalitis (JE) and Bluetongue (BT) diseases and Subviral Particle based Infectious Bursal Disease Vaccine were developed.
- **Fisheries and Aquaculture Infrastructure Development Fund (FIDF):** FIDF provides concessional finance/ loan to the Eligible Entities (EEs), including State Governments/UTs and State entities for development of identified fisheries infrastructure facilities.
 - **Independent Department:** Recognising the importance of the sector, an independent Department of Fisheries has been created in 2019.

Conclusion

Policymakers in India are finally acknowledging a structural shift in the agriculture sector they have been noticing for a decade. Livestock now controls a quarter of the agriculture gross domestic product (GDP). The livestock sector is performing well in the manner of production, value addition, and export of dairy, fishery, wool, poultry, and other products. Apart from its performance, some threats also exist; we need to overcome them to grab the global market opportunities.

Examine the problem of locust invasion that has caused an unusual threat to food security and livelihood in parts of East and West Africa, South West Asia, and India, What measures need to be taken? Discuss. (250 words)

Reference: [Indian Express](#)

Why this question:

The article explains why locusts are being sighted in urban areas, what it can mean for crops.

Telegram: <https://t.me/insightsIAStips>

Youtube: <https://www.youtube.com/channel/UCpoccbCX9GEIwaile4HLjwA>

Facebook: <https://www.facebook.com/insightsonindia>

**Key demand of the question:**

Explain problem of locust invasion that has caused an unusual threat to food security and livelihood in parts of East and West Africa, South West Asia, and India while suggesting measures that need to be taken.

Directive:

Examine – When asked to ‘Examine’, we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:**Introduction:**

Briefly explain the issue of Locusts in the country. The first swarms were sighted along the India-Pakistan border on April 11, months ahead of the usual time of arrival.

Body:

To start with, explain what are locusts and when are they are sighted in India. Explain the issue – These insects feed on a large variety of crops. If not controlled, locust swarms can threaten the food security of a country. At present countries in the Horn of Africa such as Ethiopia and Somalia are witnessing one of the worst locusts attacks in the last 25 years. Present the case of current locust storms that have infested north- western parts of India. Explain in what way they lead to food insecurity if not controlled. Present the case of India.

Conclusion:

Suggest measures to address the issue.

Introduction:

Locusts are a group of short-horned grasshoppers that multiply in numbers as they migrate long distances in destructive swarms (up to 150km in one day). In recent weeks, locust swarms have attacked crops in more than a dozen countries in Asia and Africa. Swarms of locusts are being sighted early in India and in areas not historically associated with such sightings.

Body:**Locusts:**

- They are a collection of certain species of short-horned grasshoppers in the family Acrididae that have a swarming phase.
- These insects are usually solitary, but under certain circumstances they become more abundant and change their behaviour and habits, becoming gregarious.
- No taxonomic distinction is made between locust and grasshopper species; the basis for the definition is whether a species forms swarms under intermittently suitable conditions.
- These grasshoppers are innocuous, their numbers are low, and they do not pose a major economic threat to agriculture.
- However, under suitable conditions of drought followed by rapid vegetation growth, serotonin in their brains triggers a dramatic set of changes: they start to breed abundantly, becoming gregarious and nomadic (loosely described as migratory) when their populations become dense enough.
- They form bands of wingless nymphs which later become swarms of winged adults. Both the bands and the swarms move around and rapidly strip fields and cause damage to crops.
- The adults are powerful fliers; they can travel great distances, consuming most of the green vegetation wherever the swarm settles

**Locusts in India:**

- The first swarms were sighted along the India-Pakistan border on 11th April 2020, months ahead of the usual time of arrival.
- Agriculture Ministry's Locust Warning Organization (LWO) reported the first sightings in Rajasthan's Sri Ganganagar and Jaisalmer districts.
- In India, locusts are sighted normally during July- October along the Pakistan border.
- In 2019, parts of Western Rajasthan and Northern Gujarat reported swarms that caused damage to growing rabi crops.
- These were the first swarms reported in India since 1997.
- Locusts are being seen in areas not historically associated with such sightings.
- These areas include urban areas of Rajasthan including Jaipur, Madhya Pradesh's Gwalior, Morena and Sheopur.
- Also, stray swarms are seen in Vidharbha region of Maharashtra's Amravati, Nagpur and Wardha.
- Since there are no crops in the fields, the locusts have moved across states attracted by green cover.
- The swarms were aided by high-speed wind and thus they made their way to Jaipur.
- At present, there are 3 to 4 swarms in Rajasthan, another 2 or 3 in Madhya Pradesh.
- From Madhya Pradesh, a group has migrated to Maharashtra, which is not very difficult to control.

Implications for crops in India:

- At present, chances of crop damage are low given that farmers have already harvested their rabi crop.
- The bigger problem will come once the present swarms breed.
- An adult female locust lays 80-90 eggs thrice in her three-month life cycle.
- If left uncontrolled, a swarm can grow exponentially to 40-80 million locusts per square kilometre.
- The locusts will start laying eggs after the monsoon starts and continue breeding for two more months.
- The newer generations may rise during the growth phase of kharif crop.
- In May 2020, Union Agriculture Minister chaired a meeting to take stock of the situation.
- Control involves spraying insecticide on locusts' night resting places like trees using drones.
- India has also put an order of 60 specialised insecticide sprayers with the UK, with India already having 50 such machines.

Measures to control:

- Bio Control: Control by natural predators and parasites so far is limited since locusts can quickly move away from most natural enemies. The most effective controls were natural ones: crows, mynahs, starlings, storks, bustards, vultures and other birds all congregated to feast on locusts.
- LWO role: The locust hunters in both countries have coordinated with military authorities like the Border Security Force to set up regular meetings at border points.
- Controlling desert locust swarms primarily uses organophosphate chemicals by vehicle-mounted and aerial sprayers, and to a lesser extent by knapsack and hand-held sprayers.
- Extensive research is ongoing regarding biological control and other means of non-chemical control with the current focus on pathogens and insect growth regulators.



Conclusion:

While climate change is a global phenomenon, **developing countries and least developed countries stands out for its vulnerability** which is driven primarily by the prevailing low levels of socioeconomic development. Persons living in poverty face compounding vulnerabilities to climate change impacts because they lack the resources to quickly recover from its effects. In this case, desert locusts are ravaging crops in the field before harvesting, wiping out livestock and wildlife feed, and with them savings, assets and livelihoods. Deployment of **climate action solutions** such as **decentralizing solar dryers to agro-value chain actors** can ensure that they can earn up to 30 times more by being able to preserve their harvest and sell during the offseason or gives them flexibility to compensate for unpredictable events such as these locust swarms.

Food processing and related industries in India- scope and significance, location, upstream and downstream requirements, supply chain management.

Examine the Potential and challenges of Pink Revolution in India.(250 words)

Reference: [The Hindu](#)

Why this question:

The question is based on the static theme of “Food processing and related industries in India” and its significance.

Key demand of the question:

The question is straightforward and aims to examine the potential and challenges of Pink revolution.

Directive:

Examine – When asked to ‘Examine’, we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Define what you understand by Pink revolution.

Body:

Pink Revolution is a term used to denote the technological revolutions in the meat and poultry processing sector. Meat and poultry processing sector in the country has great potentials for growth. The present meat consumption per capita of around 6 grams per day will improve to 50 grams a day in the next decade or so. When such phenomenal increase in meat consumption occurs, the sector will witness a tremendous growth. Despite India’s large livestock Population, India accounts only around 2 percent of global market. Challenges include creating standard policies for meat production and export, standardizing the quality and safety aspects of meat and poultry, and creating infrastructure facilities for modern slaughter houses, meat testing facilities and cold storages for the growth of the meat and poultry processing sector.

Conclusion:

Conclude with solutions.

Introduction:

Pink revolution refers to the modernization or technological revolutions of the meat and poultry processing sector in India. India has already seen the ‘green’ and ‘white’ revolutions in its food industry – related to agriculture and milk respectively, now thrust is upon meat and poultry sector. India being a country of huge cattle and poultry population, has high potential for growth if this sector is modernized.

Body:



Current scenario:

- According to the Agricultural and Processed Food Products Export Development Authority (APEDA), India's buffalo meat exports have fallen 9% in 2018-19 from a year ago to the lowest level in six years.
- The present meat consumption per capita of around 6 grams per day will improve to 50 grams a day in the next decade or so. When such phenomenal increase in meat consumption occurs, the sector will witness a tremendous growth.
- Despite India's large livestock population, India accounts only around 2 percent of global market.
- China had stopped buying Indian meat on fear of the foot and mouth disease a few years ago.
- Exporters said the devaluation of currencies of Brazil and Argentina had also made Indian supplies less competitive.
- China was a bulk consumer a few years ago and there was a safety net for the industry in terms of consistent volume of trade.

Potential of pink revolution:

- India is having a good potential for meat production because of large livestock population.
- About 20.5 million people depend upon livestock for their livelihood.
- Livestock contributed 16% to the income of small farm households as against an average of 14% for all rural households.
- Livestock provides livelihood to two-third of rural community.
- It also provides employment to about 8.8 % of the population in India. India has vast livestock resources.
- Livestock sector contributes 4.11% GDP and 25.6% of total Agriculture GDP.
- Meat exported from India is risk-free, lean, nutritious and competitively priced meat.
- It has resulted in consistent, high compound growth rate in the export volumes.
- The importers of Indian meat are Vietnam, Malaysia, Thailand, Australia, UAE, Saudi Arabia and Egypt.
- Uttar Pradesh state has emerged as the major exporter of buffalo meat followed by Punjab and Maharashtra.
- The value addition to slaughterhouse by products generate additional income as well as the costs of disposing of by products can be minimized.
- There is huge potential in this sector for economic development of country through increasing exports so the policy makers should adopt critical measures at every stage to encourage and support this vital segment of the Indian agriculture.

Challenges of Pink revolution:

- Livestock sector did not receive the policy and financial attention it deserved. The sector received only about 12% of the total public expenditure on agriculture and allied sectors, which is disproportionately lesser than its contribution to agricultural GDP.
- The sector has been neglected by the financial institutions.
 - The share of livestock in the total agricultural credit has hardly ever exceeded 4% in the total (short-term, medium-term and long-term). The institutional mechanisms to protect animals against risk are not strong enough.
- **Insurance:**



- Currently, only 6% of the animal heads (excluding poultry) are provided insurance cover. Livestock extension has remained grossly neglected in the past.
- Only about 5% of the farm households in India access information on livestock technology. These indicate an apathetic outreach of the financial and information delivery systems.
- **Lack of access to markets** may act as a disincentive to farmers to adopt improved technologies and quality inputs.
- **Productivity:**
 - Improving productivity of farm animals is one of the major challenges. The average annual milk yield of Indian cattle is 1172 kg which is only about 50% of the global average.
- **Diseases:**
 - The Frequent outbreaks of diseases like Food and Mouth Diseases, Black Quarter infection, Influenza etc. continue to affect Livestock health and lower the productivity.
- **Environment:**
 - India's huge population of ruminants contributes to greenhouse gases emission adding to global warming. Reducing greenhouse gases through mitigation and adaptation strategies will be a major challenge.
- **Crossbreeding of indigenous species** with exotic stocks to enhance genetic potential of different species has been successful only to a limited extent.
- **Limited Artificial Insemination services** owing to a deficiency in quality germplasm, infrastructure and technical manpower coupled with poor conception rate following artificial insemination have been the major impediments.
- Livestock derives a major part of their energy requirement from agricultural by-products and residues. Hardly 5% of the cropped area is utilized to grow fodder. India is deficit in dry fodder by 11%, green fodder by 35% and concentrates feed by 28%. The common grazing lands too have been deteriorating quantitatively and qualitatively.
- Except for poultry products and to some extent for milk, markets for livestock and livestock products are underdeveloped, irregular, uncertain and lack transparency. Further, these are often dominated by informal market intermediaries who exploit the producers.
- Likewise, **slaughtering facilities are too inadequate**. About half of the total meat production comes from un-registered, make-shift slaughterhouses. Marketing and transaction costs of livestock products are high taking 15-20% of the sale price.

Measures needed to propel the pink revolution in India:

- A national breeding policy is needed to upgrade the best performing indigenous breeds.
- Measures should be taken to increase the meat production efficiency of different species of animals using the improved management practices.
- Adoption of improved shelter management practices can reduce the environmental stress.



- New breeds should be developed for meat production with higher feed conversion efficiency, faster growth and disease resistant.
- Health management practices should be followed for prevention of diseases and economic loss to the farmers.
- Regular prophetic health measures should be carried out against infectious diseases.
- Regular screening of animals should be carried out against disease such as tuberculosis, brucellosis, salmonellosis etc.
- The livestock market yard should have basic facilities for feeding, watering and holding animals for days.
- By vertical integration with meat processing industries the middle men can be eliminated, which will ultimately increase the profit of farmers.
- There is need for modernizing the quality control laboratories of the State Government, apart from need for strict laboratory inspection of meat and meat products, training programs for meat workers regarding hygiene and sanitation need to be organized regularly.
- Modernization of abattoirs, setting up of rural abattoirs and registration of all slaughter houses in cities/towns are essential for quality meat production.
- The setting up of large commercial meat farms have been recommended to address the traceability issues necessary for stringent quality standards of CODEX.

Way forward:

In a report titled the '**Indian Meat Industry Perspective**', the **FAO** outlined four steps that should be taken if India's food industry is to successfully go pink. These recommended steps were: **setting up state of the art meat processing plants; developing technologies to raise male buffalo calves for meat production; increasing the number of farmers rearing buffalo under contractual farming; and establishing disease-free zones for rearing animals.**

Conclusion:

Being a secular country the focus should be more on professional aspect of market rather than religious aspect. India needs legislations and willingness to make India fair play ground not only for domestic entrepreneurs but also for global players in meat and poultry business.

Discuss the Scope and Significance of Food Processing Industries in India. (250 words)

Why this question:

The question is straightforward from the static portions of GS paper III.

Key demand of the question:

Explain the Scope and Significance of Food Processing Industries in India.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

The food processing industry in India is increasingly seen as a potential source for driving the rural economy as it brings about synergy between the consumer, industry and the farmer.

Body:

To start with, explain the importance of food processing industry. Food processing activity is still at a nascent stage in India with low penetration. List down the importance of food processing industry – Holds the potential of reducing enormous wastage of agricultural produce in the absence of



processing technologies and cold chain facility, is labour-intensive industry, lead to increase in farm income etc. Discuss the conditions favorable for food processing. Highlight the importance of it.

Conclusion:

Conclude with significance of it to Indian economy.

Introduction:

Food processing generally includes the basic preparation of foods, the alteration of a food product (usually raw) into another form (as in making preserves from fruit), and preservation and packaging techniques. Food processing typically takes harvested crops or animal products and uses these to produce long shelf-life food products.

It includes the **process of value addition** to produce products through methods such as preservation, addition of food additives, drying etc. with a view to preserve food substances in an effective manner, enhance their shelf life and quality.

Body

Scope of FPI in India:

- India is the world's second largest producer of fruits & vegetables after China but hardly 2% of the produce is processed.
- India is among the top 5 countries in the production of coffee, tobacco, spices, seeds etc. With such a huge raw material base, we can easily become the leading supplier of food items in the world.
- In spite of a large production base, the level of processing is low (less than 10%). Approximately 2% of fruits and vegetables, 8% marine, 35% milk, 6% poultry are processed. Lack of adequate processable varieties continues to pose a significant challenge to this sector.
- **Economic Survey 2020:** During the last 6 years ending 2017-18, Food Processing Industries sector has been growing at an average annual growth rate of around 5.06 per cent.
 - **Employment:** According to the **Annual Survey of Industries** for 2016-17, the total number of persons engaged in registered food processing sector was **54 lakhs**. (whereas unregistered FPOs supports **51.11 lakh** workers)
- **Farmer Beneficiaries:** The SAMPADA scheme is estimated to benefit about **37 lakh** farmers and generate about **5.6 lakh direct/ indirect employment** (ES 2020 data).
- **Curbing Distress Migration:** Provides employment in rural areas, hence reduces migration from rural to urban. Resolves issues of urbanization.

Government Initiatives to boost the FPI:

- The Ministry of Food Processing Industries (MoFPI) is implementing **PMKSY (Pradhan Mantri Kisan SAMPADA Yojana)**. The objective of PMKSY is to supplement agriculture, modernize processing and decrease agri-waste.
 - Mega Food Parks.
 - Integrated Cold Chain, Value Addition and Preservation Infrastructure.
 - Creation/Expansion of Food Processing/Preservation Capacities.



- Infrastructure for Agro Processing Clusters.
- Scheme for Creation of Backward and Forward Linkages.
- **Foreign Direct Investment (FDI) policy:** FDI up to 100%, under the automatic route is allowed in food processing industries.
- **Agri Export Zones:** To give thrust to export of agro products, new concept of Agri Export Zones was brought in 2001. **APEDA** has been nominated as the Nodal Agency to coordinate the efforts
 - cluster approach of identifying the potential products;
 - the geographical region in which these products are grown;
 - Adopting an end-to-end approach of **integrating the entire process** right from the stage of production till it reaches the market (farm to market).

Significance of the food processing industries:

The **Food Processing Industry (FPI)** is of enormous significance as it provides vital linkages and synergies that it promotes between the two pillars of the economy, i.e. agriculture and industry.

- **Employment Opportunities:** Food processing industries can absorb a major share of workers from the agriculture sector, who face disguised unemployment. It can lead to better productivity and GDP growth.
- **Prevents Wastage:** Nearly one-third of the food that is produced each year goes uneaten, costing the global economy **over \$940 billion** as per report by **World Resources Institute (WRI)**
 - India is biggest producer of numerous fruits and vegetable. Most of these are perishable and have very low shelf life. This is the major reason for high percentage of wastage. Their shelf life can be increased through food processing.
- **Value Addition:** Products such as tomato sauce, roasted nuts, de-hydrated fruits are in high demand.
- **Reduce malnutrition:** Processed foods when fortified with vitamins and minerals can reduce the nutritional gap in the population.
- **Boosts Trade and Earns Foreign exchange:** It is an important source of foreign exchange. For e.g. Indian Basmati rice is in great demand in Middle Eastern countries.
- **Make in India:** Food processing is one of the six superstar sectors under the GoI's, Make in India initiative and has the potential to transform India as a leading food processing destination of the World.
- **Curbing Food Inflation:** Processing increases the shelf life of the food thus keeping supplies in tune with the demand thereby controlling food-inflation.
 - **For e.g.** Frozen peas/ corn are available throughout the year.
 - Similarly, canned onions under Operation Greens can achieve price stability.
- **Doubling of farmers' income:** With contract farming, farmers can get better technological inputs from industries as well. There is income security and proportionate value for produce. They are also protected against price shocks.



- **Crop-diversification:** Food processing will require different types of inputs thus creating an incentive for the farmer to grow and diversify crops.

Impediments faced by FPI:

Food Processing Sector- Impediments



8

MOFPI
Ministry of Food Processing Industries
Government of India

Conclusion

Food processing has a promising future, provided adequate government support is there. Food is the biggest expense for an urban Indian household. About 35 % of the total consumption expenditure of households is generally spent on food. As mentioned, food processing has numerous advantages which are specific to Indian context. It has the capacity to lift millions out of undernutrition. Government has its work cut out to develop industry in a way which takes care of small scale industry along with attracting big ticket domestic and foreign investments.

Effects of liberalization on the economy, changes in industrial policy and their effects on industrial growth.

Deliberate upon the impact of the ongoing pandemic in changing dynamics of global value chain (GVC)? Suggest as to how Indian industries should behave post-pandemic situation. (250 words)

Reference: [Economic Times](https://www.economic-times.com)

Why this question:

The article talks about the impact of the ongoing pandemic in changing dynamics of global value chain (GVC) and the way forward for the Indian industries.

Key demand of the question:

Deliberate upon the impact of the ongoing pandemic in changing dynamics of global value chain (GVC) and highlight the role that Indian industries should play in the post-pandemic situation.

Directive:

Telegram: <https://t.me/insightsIAStips>

Youtube: <https://www.youtube.com/channel/UCpocbcX9GEIwaile4HLjwA>

Facebook: <https://www.facebook.com/insightsonindia>



Deliberate – Weigh up to what extent something is true. Persuade the reader of your argument by citing relevant research but also remember to point out any flaws and counter-arguments as well. Conclude by stating clearly how far you agree with the original proposition.

Structure of the answer:

Introduction:

Start by explaining the fact that the manufacturing and production ecosystem of the world is undergoing massive changes.

Body:

To start with explain that the outbreak of the COVID-19 pandemic has sent shock waves floating up and down GVCs. Unlike the previous epidemics, this public health threat is very unique, and increasingly becoming an economic threat. The hard-hit sectors in this pandemic are precision instruments, machinery, automotive and communication equipment. Present the case of Indian industries. Explain what needs to be done, suggest solutions to address the above challenges.

Conclusion:

Conclude that the reconfiguration of GVCs will be the key imperatives for businesses and policy makers in the coming future to ensure a global sustainable market.

Introduction:

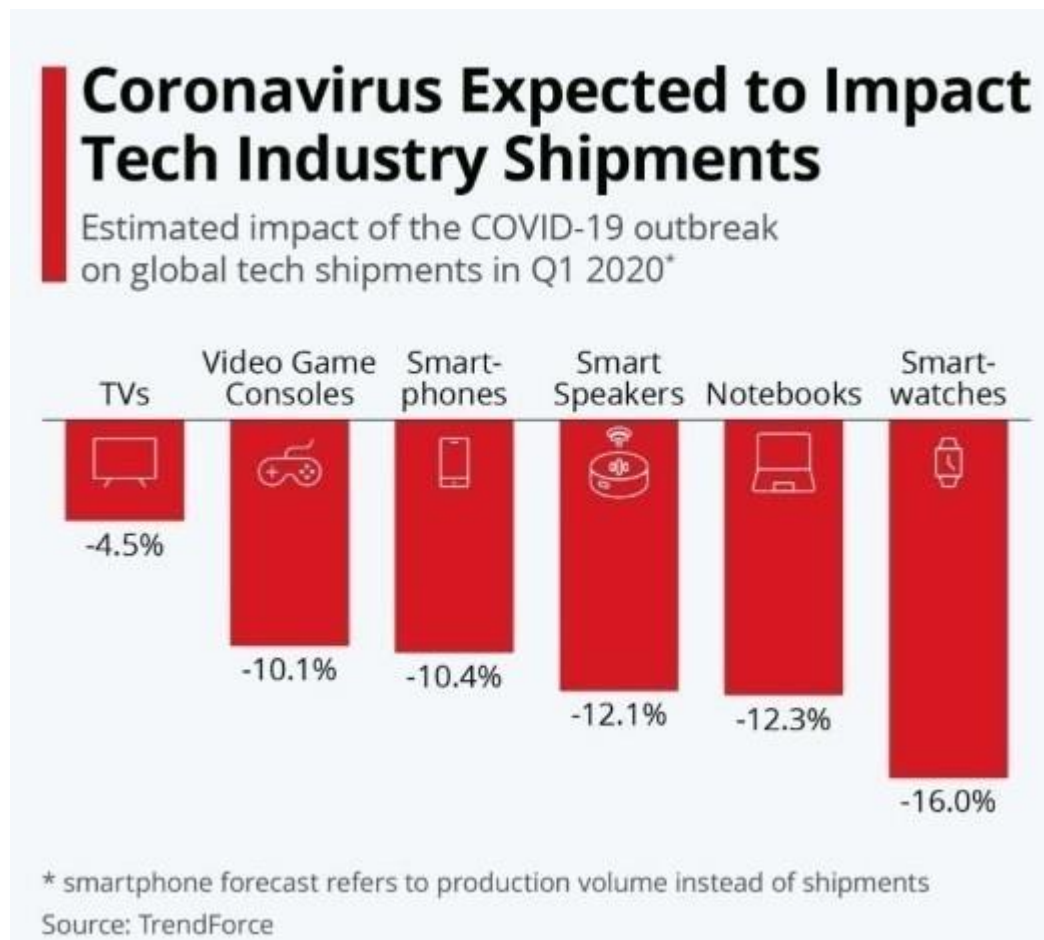
Global value chains (GVCs) integrate the know-how of lead firms and suppliers of key components along stages of production and in multiple offshore locations. The international, inter-firm flow of know-how is the key distinguishing feature of GVCs.

Global Value Chains are undergoing profound changes, with important implications for the manufacturing and production ecosystem. When uncertainty rises, global value chains suffer. Based on past data, one can predict that a 300% increase in uncertainty—as the covid-19 pandemic seems likely to produce—would reduce global supply-chain activity by 35.4%.

Body:

Importance of GVCs:

- **Promote productivity and growth:** According to WTO report, a 1% increase in GVC participation is estimated to boost per capita income levels by more than 1%—about twice as much as standard trade.
- In Ethiopia, firms participating in GVC are more than twice as productive as similar firms that participate in standard trade.
- **Reduce poverty:** Since gains in growth from GVC are larger than from trade in final products, their impact on poverty reduction is also larger.
- Regions in Mexico and Vietnam that participated more intensively in GVCs experienced greater reductions in poverty.
- **Deliver better jobs:** Firms in GVC draw people into more productive manufacturing and services activities and tend to employ more women, supporting structural transformation in developing countries.
- **Important for growth:** GVCs are a powerful driver of productivity growth, job creation, and increased living standards. Countries that embrace them grow faster, import skills and technology, and boost employment.
- With GVC-driven development, countries generate growth by moving to higher-value-added tasks and by embedding more technology and know-how in all their agriculture, manufacturing, and services production.
- GVCs provide countries the opportunity to leap-frog their development process.



Impact of the ongoing pandemic in changing dynamics of global value chain:

- According to the United Nations Conference on Trade and Development (UNCTAD) estimates, published on 8 April 2020, India is among the first 15 most affected economies due to the COVID-19 pandemic.
- The disruption of world trade has a trade impact of US\$ 348 million in India due to the pandemic, although it is less compared to its developed trade partners such as EU, the US, Japan and South Korea.
- The outbreak of the COVID-19 pandemic has sent shock waves floating up and down GVCs.
- Unlike the previous epidemics, this public health threat is very unique, and increasingly becoming an economic threat.
- The hard-hit sectors in this pandemic are precision instruments, machinery, automotive and communication equipment.
- In India, these industries have started showing their participation in the GVC although facing a severe supply chain disruption due to lockdown and restrictive border controls.
- The logistic sector is breaking down and the resultant disruptions are spreading across economics.
- The businesses of small and medium enterprises, dependent on cross-border trades, have come to a standstill. This damage is irreparable.
- Higher foreign value content in export and higher domestic value content in export indicate stronger backward and forward participation in GVC. These linkages have been strongly interrupted due to lockdown.

**Measures needed for Indian industries in post-pandemic era:**

- According to the recent report published by the WTO, transparency obligations are crucial for trade in goods and services to flow. Governments are taking new trade measures every day in response to COVID-19.
- Any crisis opens new opportunities and replaces some old. Global shock helps economists and policymakers to find new pathways to grab those opportunities.
- **Short term measures:**
 - **A strong fiscal and monetary policy-mix is the need of the hour in India.**
 - The foreign content in the sectoral output of pharma industry is approximately 22%.
 - Thus, prioritising pharma industries would help in substitution for critical imported inputs by domestic ones, as there may be a large demand worldwide for these goods in the current situation.
 - This stage of the economy is an opportune moment for deficit financing.
 - In the face of large-scale unemployment and lockdown impact on livelihood of most people in India, **the deficit financing may jack up domestic demand and production.**
- **Medium to long term policy-mix measures:**
 - **ICT adoption and internet penetration, digitization, innovation and growth of e-commerce** should be prioritised in order to get the benefits of fourth industrial revolution, as **virtual platforms or 'digital supply networks'** will become more important for matching providers and users.
 - Policies such as **digital policy, AI strategy, e-commerce policy and start-up policy** are going to be instrumental to take our economy back to its growth trajectory.
 - **Brining small retailers in the e-commerce platform is imperative**, so that they can't run out from their business during the crisis.
 - Further, tackling unnecessary policy impediments to value chain operations, such as a lack of alignment of standards and other regulatory barriers, is now more important than ever to reduce the costs of international transactions.
 - After this outbreak, countries need to reengage with each other to find the silver lining, as this is a novel economic crisis that novel coronavirus has brought to us.

Conclusion:

Mitigating the impact of COVID-19 on manufacturers and supply chains requires both **new approaches and new forms of collaboration to increase overall resilience**. Therefore, there is a need of proposing a **new framework to help governments and companies** think through the implications of the ongoing transformations of Global Value Chains for their industrial development and investment strategies. Thinking of **new opportunities for multi-stakeholder collaboration for national economies** in order to advance their levels of readiness, built resilience and have a role to play in next-generation Global Value Chains.



Discuss the role of Public Sector Enterprises in the Indian Economy.(250 words)

Reference: Indian economy by Dutta and Sundaram

Why this question:

The question is straightforward and is from the static portions of paper III.

Key demand of the question:

Explain the role of public sector enterprises in India and their contributions to Indian economy.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain the scenario of public sector enterprise in India.

Body:

Explain that the public sector in India is composed of a number of segments; the govt., departmental and non-departmental enterprises. Then move on to discuss the importance/presence of the Public Sector in the Indian Economy. Discuss elaborately role of the Public Sector in the Indian Economy. Highlight the Problems Associated with Public Sector while suggesting solutions to the same.

Conclusion:

Conclude with way forward.

Introduction:

In India, a public sector company is that company in which the Union Government or State Government or any Territorial Government owns a share of 51 % or more. Currently there are just three sectors left reserved only for the government i.e. Railways, Atomic energy and explosive material. Private sectors/players are not allowed to operate in these sectors.

Body:

The public sector aims at achieving the following objectives:

- To promote rapid economic development through creation and expansion of infrastructure
- To generate financial resources for development
- To promote redistribution of income and wealth
- To create employment opportunities
- To promote balanced regional growth
- To encourage the development of small-scale and ancillary industries, and
- To accelerate export promotion and import substitution

Role of Public Sector Enterprises in the Indian Economy:

Public Sector and Capital Formation:

- The role of public sector in collecting saving and investing them during the planning ear has been very important.
- During the first and second five year plan it was 54% of the total investment, which declined to 24.6 % in the 2010-11.

Employment Generation:

- Public sector has created millions of jobs to tackle the unemployment problem in the country.



- The number of persons employed in the as on march 2011 was 150 lakh.
- Public sector has also contributed a lot towards the improvement of working and living conditions of workers by serving as a model employer.
- **Balanced Regional Development:**
 - Public sector undertakings have located their plants in backward parts of the county. These areas lacked basic industrial and civic facilities like electricity, water supply, township and manpower.
 - Public enterprises have developed these facilities thereby bringing about complete transformation in the socio-economic life of the people in these regions.
 - Steel plants of Bhilai, Rourkela and Durgapur; fertilizer factory at Sindri, are few examples of the development of backward regions by the public sector.
- **Contribution to Public Exchequer:**
 - Apart from generation of internal resources and payment of dividend, public enterprises have been making substantial contribution to the Government exchequer through payment of corporate taxes, excise duty, custom duty etc. gross internal resource generation in 1990-2000 was 36000 cr which rose to 1, 11,000 cr in 2008-09, while net profit was 92,077 cr in 2010-11.
- **Export Promotion and Foreign Exchange Earnings:**
 - Some public enterprises have done much to promote India's export. The State Trading Corporation (STC), the Minerals and Metals Trading Corporation (MMTC), Hindustan Steel Ltd., the Bharat Electronics Ltd., the Hindustan Machine Tools, etc., have done very well in export promotion.
- **Import Substitution:**
 - Some public sector enterprises were started specifically to produce goods which were formerly imported and thus to save foreign exchange.
 - The Hindustan Antibiotics Ltd., the Indian Drugs and Pharmaceuticals Ltd. (IDPL), the Oil and Natural Gas Commission (ONGC), the Indian Oil Corporation Ltd., the Bharat Electronics Ltd., etc., have saved foreign exchange by way of import substitution.
- **Promotion of Research and Development:**
 - As most of the public enterprises are engaged in high technology and heavy industries, they have undertaken research and development programmes in a big way.
 - Public sector has laid strong and wide base for self-reliance in the field of technical know-how, maintenance and operation of sophisticated industrial plants, machinery and equipment in the country.
 - Expenditure on research and development reduces the cost of production.

Despite their impressive role, Public enterprises in India suffer from **several problems and shortcomings. It includes Poor Project Planning, Over-capitalization, excessive overheads,**



overstaffing, under-utilization of the capacity, lack of proper price policy and inefficient management.

Conclusion:

The public sector in India has its set of several drawbacks and failures, but that does not underestimate the crucial role it plays in the economy as it acts as an essential catalyst to propel the economy forward regarding overall growth and development, along with the general welfare of the citizens.

Discuss the effects of Liberalization on various aspects of Indian economy and Society.
(250 words)

Reference: Indian economy by Dutta and Sundaram

Why this question:

The question is again from the static portions of GS paper III.

Key demand of the question:

The question aims to discuss the effects of Liberalization on various aspects of Indian economy and Society.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain the coming of liberalisation and its application to Indian economy.

Body:

To start with, explain the impact of liberalisation on Indian economy in general. Explain that we have seen landmark shift in Indian Economy since the adoption of new economic policy in 1991. This had far reaching impacts on all spheres of life in India. There can be no concrete conclusions about their impact on Indian people. Economic liberalization is the lessening of government regulations and restrictions in an economy in exchange for greater participation by private entities; the doctrine is associated with classical liberalism. Thus, liberalization in short is “the removal of controls” in order to encourage economic development. Discuss its impact on various sectors of economy – agriculture, industry, health, education, IT etc. Explain how it impacted the fabric of Indian society; highlight both positives and negatives.

Conclusion:

Conclude with significance.

Introduction:

Economic liberalization is the lessening of government regulations and restrictions in an economy in exchange for greater participation by private entities; the doctrine is associated with classical liberalism. Thus, liberalization in short is “the removal of controls” in order to encourage economic development.

After suffering a huge financial and economic crisis our previous Government brought a new policy which is known as **Liberalization, Privatization and Globalization Policy (LPG Policy)** also known as **New Economic Policy, 1991** as it was a measure to come out of the crisis that was going on at that time.

Body:

Impact on Indian Economy:



- India's annual average growth rate from 1990 – 2010 has been 6.6 % which is almost double than pre reforms era.
- **Free flow of capital:** Liberalisation has improved flow of capital into the country which makes it inexpensive for the companies to access capital from investors. Lower cost of capital enables to undertake lucrative projects which they may not have been possible with a higher cost of capital pre-liberalisation, leading to higher growth rates.
- **Stock Market Performance:** Generally, when a country relaxes its laws, taxes, the stock market values also rise. Stock Markets are platforms on which Corporate Securities can be traded in real time.
- **Political Risks Reduced:** Liberalisation policies in the country lessens political risks to investors. The government can attract more foreign investment through liberalisation of economic policies. These are the areas that support and foster a readiness to do business in the country such as a strong legal foundation to settle disputes, fair and enforceable laws.
- **Diversification for Investors:** In a liberalised economy, Investors gets benefit by being able to invest a portion of their portfolio into a diversifying asset class.

Impact on Agriculture:

- In the area of agriculture, the cropping patterns has undergone a huge modification, but the impact of liberalisation cannot be properly measured. It is observed that there are still all-pervasive government controls and interventions starting from production to distribution for the produce.
- Global agricultural economy is highly distorted. This is mainly because imbalance in economic and political power in hands of farmers of developed and developing countries. In developed countries, commercial and capitalistic agriculture is in place which is owned by influential Agri corporations. They easily influence policies of WTO and extract a better deal for themselves at cost of farmers of developing world.
- Farming in developing world is subsistence and supports large number of poor people. With globalization there has been high fluctuation in commodity prices which put them in massive risk. This is particularly true for cash crops like Cotton and Sugarcane. Recent crises in both crops indicate towards this conclusively.
- Another global debate born out of globalization is one of GM crops. Here too powerful MNCs like Monsanto hold the key. USA allows unhindered use of GM crops, but EU bans it. In India only non-food GM crops are grown.
- Apart from these, Farm Mechanization i.e. use of electronic/solar pumps, Tractors, combines etc. all are fruits of globalization. Now moving a step further, Information technology is being incorporated into agriculture to facilitate farming.

Impact on Small scale industry

- SSIs however exists and still remains backbone of Indian Economy. It contributes to major portion of exports and private sector employment.
- Results are mixed, many erstwhile Small scale industries got bigger and better.
- But overall value addition, product innovation and technology adoption remains dismal and they exist only on back of government support.
- Their products are contested by cheaper imports from China.

Impact on Services Sector:



- In service sector, globalization has changed the scene of developing countries and misery for developed ones.
- Due to historic economic inequality between two groups, human resources have been much cheaper in developing economies.
- This was further aided by information technology revolution and this all culminated in migration of numerous jobs from developed countries to developing countries.
- Best part is that export of services result in export of high value. There is almost no material exported which consume some natural resource. Only thing exported is labour of Professionals, which does not reduce, instead grows with time.
- Now India is better positioned to become actually Knowledge Economy. Exports of these services generate huge revenue for India's foreign Exchange.

Impact on Education and Health Sectors:

- It should be noted that food (Agriculture), Health and education (and to lesser extent banking) are among basic necessities, which every human being deserves and can't do without.
- Unfortunately, in developing countries there is market failure in all these sectors and majority of people can't afford beyond a certain limit (or can't afford at all).
- Concept of free markets, globalization, liberalization etc. fails here miserably.
- Free markets provide goods and services to people who can afford paying for them, not to those who deserve and need these.
- Now if we consider these sectors from angle of our inclination towards free markets, certainly there has been lot of progress.
- There has been world class education available in India and Deregulation has resulted in Mushrooming of private engineering and Medical Colleges.
- But in reality, this had far reaching devastating effect on society. These new colleges accommodate only a miniscule proportion of aspirants at very high costs.
- Reality is that after deregulation and liberalization, government along with other sectors, pulled its hand from social sectors too. Now there is Mediocre to high quality options are available in private sector which can be availed as per one's budget.

Overall negative impacts of liberalization:

- **Impact of FDI in Banking sector:** Foreign direct investment allowed in the banking and insurance sectors resulted in decline of government's stake in banks and insurance firms.
- **Destabilization of the economy:** Tremendous redistribution of economic power and political power leads to Destabilizing effects on the entire Indian economy.
- **Threat from Multinationals:** Prior to 1991 MNC's did not play much role in the Indian economy. In the pre-reform period, there was domination of public enterprises in the economy. On account of liberalisation, competition has increased for the Indian firms. Multinationals are quite big and operate in several countries which has turned out a threat to local Indian Firms.
- **Technological Impact:** Rapid increase in technology forces many enterprises and small scale industries in India to either adapt to changes or close their businesses.
- **Mergers and Acquisitions:** Acquisitions and mergers are increasing day-by-day. In cases where small companies are being merged by big companies, the employees of the small companies may require exhaustive re-skilling. Re-skilling duration will lead to non-productivity and would cast a burden on the capital of the company.

Conclusion:



It is well recognized that liberalization has major impact on the Indian economy and made it a huge consumer market. Currently, most of the economic changes in the country are based on the demand supply cycle and other economic factors. Today, India has made good status in economy in terms of market exchange rate and 5th largest in terms of the purchasing power parity. Economic liberalization is generally thought of as a useful and necessary process for developing nations. The fundamental goal is to have clear capital flowing into and out of the country in order to increase growth and efficiencies within the domestic country. The effects following liberalization are what should interest investors as it can provide new opportunities for diversification and profit.

Infrastructure: Energy, Ports, Roads, Airports, Railways etc.

Deliberate on the problems in railway infrastructure in the country and also discuss the efforts of the government to resolve the issues in this direction.(250 words)

Reference: [Business Today](#)

Why this question:

The question is straightforward and is based on topics from the static portions of GS paper III.

Key demand of the question:

One has to discuss the problems in railway infrastructure in the country and the efforts of the government to resolve the issues in this direction.

Directive:

Deliberate – Weigh up to what extent something is true. Persuade the reader of your argument by citing relevant research but also remember to point out any flaws and counter-arguments as well. Conclude by stating clearly how far you agree with the original proposition.

Structure of the answer:

Introduction:

One can start by presenting some key facts highlighting the expanse of the railway infrastructure.

Body:

List down the key problems – The quality of service provided leaves scope for substantial improvement in many areas. The average speed of trains is much lower than in other comparable countries. Railway safety is also an issue. The entire system is in urgent need of modernization. The Rolling stock must be modernized and new. Higher capacity locomotives inducted. Average speeds must be significantly increased etc. Discuss and list down some of the efforts of the government aimed at resolving these problems.

Conclusion:

Conclude with a positive note and highlight the significance of railways as a critical transport infrastructure.

Introduction

Indian Railways (IR) has the fourth-largest rail network in the world, behind only the US, China and Russia. It is a network of 70,000km, spanning 29 states, three Union territories and 8,500 stations. It runs about 21,000 trains, two-thirds of which are passenger trains, carrying 23 million passengers and 3 million tonnes of freight per day.

This calls for a re-look into the challenges of the Indian Railways and the restructuring needed.

Body

Problems in Railway Infrastructure



- **Low Quality of Service, Catering and Punctuality:** Indian Railways deserves the credit for serving the largest democracy in the world, but it faces criticism, particularly in case of aspects like service, catering, and punctuality.
 - CAG report noted that, at present the focus is mainly on improving the façade and passenger facilities, rather than removing bottlenecks to ensure timely movement of trains.
 - The rolling stock is in need of upgradation, on par with the European nations.
- **Low Internal Revenue:** The problem of cross-subsidization has severely affected the internal revenue generation of the Indian Railways.
 - **Cross subsidization:** Money earned through freight traffic is diverted to meet the shortfalls in passenger revenue, and thus the development of freight traffic infrastructure suffers.
- **Lack of fiscal space:** The working of Indian Railways is caught up between making it a self-sufficient organisation and serving it as a transport system for the poor.
 - The result being no rise in passenger fares and new trains and routes being decided on non-commercial reasons.
 - The passenger **fares usually remain static for years**, burdening the Union Budget.
 - In order to keep finances in check, **freight charges have been raised** in the past.
 - But the discrepancy between freight charges and passenger fares seem to distort the Railways' performance.
 - The recent decision of surge pricing of tickets in premium trains is a move in a correct direction.
- **Operating Efficiency:** Indian railways has a huge employee base of 1.3 million, which includes powerful workers' unions.
 - Operating ratio of Railways is at nearly 99%, meaning there is no revenue left for making improvements.
- **Increasing Number of Accidents:** Repeated railway accidents have further raised questions on government ownership of railways.
- **General Inefficiencies:** In the previous fiscal, it missed most of its targets, including of electrification, track renewals, bridge works, and doubling of tracks.
 - In 2014/15, projects worth Rs 6.5 lakh crore were stuck, including works related to doubling, new lines, gauge conversion, traffic facilities, and electrification.
 - Today Railways faces a burden of Rs 4,83,511 crore for the execution of 458 unfinished projects.

Efforts of the government

- **Mission Raftaar** is an Indian Railway's project, to increase the speed of trains on busy routes, to reduce travel time.



- It was introduced in the Railway Budget of 2016-17 and approved by NITI Aayog in 2017.
- It aims to offer semi-high-speed trains to passengers, by running trains at a speed of 160-200 km/h in the selected corridors of the country.
- This will increase the ridership and reliability while improving the tourism prospects.
- **Vande Bharat Express:** India entered a new era of mobility with Vande Bharat Express.
 - India's first **high-tech, energy-efficient, self-propelled train**.
 - This is a prime example of the **success of Make in India movement**.
 - This train will be proliferated across India and also exported globally.
- **High Speed Rail:** The Ahmedabad-Mumbai High-speed Rail (HSR) will revolutionise the transport sector in India through speed, safety and service.
- **Freight:** Railways has achieved significant milestones in moving the country's economy faster with the highest ever freight loading in 2018-19.
 - **Freight earnings** have touched their **highest level** and is expected to be about Rs. 1.43 lakh cr in BE 2019-20.
 - **Dedicated Freight Corridors (DFC)** are gateways to India's superfast growth and development. First sections of Eastern DFC (Bhadan to Khurja, 200 Kms) and Western DFC (Rewari to Madar, 200 Kms) have been completed.
- **Modernization and upgradation:** Railways is improving passenger services including a complete **makeover of Stations by installing modern facilities** including **escalators, lifts, free wifi etc.** and using local art in the design.
 - Four stations are undergoing redevelopment - Habibganj, Gandhinagar, Charbagh and Gomtinagar.
 - Beautification of 65 stations has been completed using local art.
 - Railways has improved trains and coaches including launching the **Tejas, Antyodaya and Humsafar trains and Deen Dayalu and Anubhuti coaches**.
 - Connecting passengers to the **digital world, high speed WiFi service** has been provided at more than 800 stations.
 - Pan India rollout of **paperless Unreserved Ticketing (UTS)** has been done to make ticketing convenient and hassle free.
- **Mission Satyanishta:** It aims at sensitizing all railway employees about the need to adhere to good ethics and to maintain high standards of integrity at work. It is the first ever such mission by any government organisation.

Way-Forward

Bibek Debroy Committee made following recommendations for reforming the railways in India.



- **Need for Modernisation:** It is important to modernize the railways, so measures must be taken to reimburse the social costs speedily so that resources of the railways is better allocated and facilities are upgraded from time to time.
- **Delegation of functions:** The peripheral function of railways (**cleanliness, ticket disposal, traveller's amenities**), **must be privatized.**
- **Transition to commercial accounting:** The process of accounting in Indian Railways is very complicated.
 - The financial statements of Indian Railways need to be re-drawn, consistent with principles and norms nationally and internationally accepted.
- **The non-core function of railways must be privatized:** These activities include running hospitals and schools, catering, real estate development, including housing, construction and maintenance of infrastructure, manufacturing locomotives, coaches, wagons and their parts.
- **Expansion of Indian Railways Manufacturing Company:** According to Debroy, wagons are already produced by the private sector. Coaches and locomotives could follow. Unless they are freed from 59 their constraints, the existing production units will be unable to face this competition.
- **Encouraging private entry:** Private entry into running both freight and passenger trains in competition with Indian railways should be allowed and private participation.
- **Independent regulator:** Shift regulatory responsibility from the government to an independent regulator as the private sector will only come in if there is fair and open access to railway infrastructure.

Discuss the objectives of the National Electric Mobility Mission Plan (NEMMP) 2020, and the focus areas of FAME India Scheme.(250 words)

Reference: dhi.nic.in

Why this question:

The question is based on the National Electric Mobility Mission Plan (NEMMP) 2020.

Key demand of the question:

One must evaluate the National Electric Mobility Mission Plan (NEMMP) 2020, its objectives and the focus areas of FAME India scheme in detail.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

The National Electric Mobility Mission Plan (NEMMP) 2020 is a National Mission document providing the vision and the roadmap for the faster adoption of electric vehicles and their manufacturing in the country.

Body:

Explain the key features, objectives of the NEMMP 2020. Highlight the advantages and disadvantages. Talk about the FAME Scheme –The target is to achieve sales of 6 – 7 million in the hybrid and electric vehicles sector from 2020. The government will provide fiscal and monetary



incentives for this industry. The expectation is that crude oil worth Rs.62000 crore will be saved due to this.

Conclusion:

Conclude with importance.

Introduction

There is an ambitious target under National Electric Mobility Mission Plan **to achieve** 6-7 million sales of hybrid and electric vehicles year on year from 2020 onwards. Government aims to provide fiscal and monetary incentives to kick start this nascent technology. With the support from the Government, the cumulative sale is expected to reach 15-16 Million by 2020

Body

Objectives of National Electric Mobility Mission Plan

- To encourage reliable, affordable and efficient hybrid and electric vehicles that meet consumer performance and price expectations.
- **Government-Industry collaboration** for promotion and development of indigenous manufacturing capabilities in hybrid and electric vehicles, required infrastructure, consumer awareness and technology;
- **Energy Security:** Helping India to emerge as a leader in the electric vehicle Two-Wheeler and Four-Wheeler market in the world by 2020, with total EV sales of 6-7 million units thus enabling Indian automotive Industry to achieve global EV manufacturing leadership and contributing towards **National Fuel Security**.
- **Environment Conservation:** Mitigation of the adverse impact of vehicles on the environment.
 - According to NITI Aayog (2019), if India reaches an EV sales penetration of 30 per cent for private cars, 70 per cent for commercial cars, 40 per cent for buses, and 80 per cent for 2 and 3 wheelers by 2030, **a saving of 846 million tons of net CO₂** emissions and oil savings of 474 MTOE can be achieved.
- **Indian Manufacturing Capabilities:** Growth of domestic manufacturing capabilities in the automobile sector. Economic Survey 2019 had noted that India could become the Detroit of Electric Vehicles.

Focus areas for Faster Adoption and Manufacturing of Electric vehicles (FAME) scheme

The scheme was launched to fast-track the goals of NEMMP.

- In FAME India Phase II, launched from 1 April 2019, emphasis is on electrification of public transportation.
- **Electrification of the public & shared transport:** It is planned to support 10 Lakhs e-2W (electric – 2-Wheeler), 5 Lakhs e-3W, 55000 4Ws and 7000 Buses.
- Demand incentives on operational expenditure mode for electric buses will be delivered through State/city transport corporation (STUs).
- **Incentives will be given** to 3-wheeler/4 wheeler vehicles used for public transport or registered for commercial purposes.



- **Charging infrastructure:** About **2700 charging stations** will be established in **metros, million plus cities, smart cities** and cities of hilly states across the country.

Way Forward

There is a strong believe that **electric infrastructure** will have a massive scale going forward.

- For EVs to contribute effectively, we need commensurate efforts in developing an entire ecosystem.
 - Need to shift the focus from subsidizing vehicles to subsidizing batteries because batteries make up 50% of EV costs.
 - Work places in tech parks, Public bus depots, and Multiplexes are the potential places where charging points could be installed. In Bangalore, some malls have charging points in parking lots.
 - Corporates could **invest in charging stations** as **Corporate Social Responsibility compliances**.
- **SIAM** (Society of Indian Automobile Manufacturers) the nodal body for Indian automobile industry reports that the country currently sells close to 750,000 electric vehicles a year, a majority of these are two wheelers, which sold 6,30,000 units, with 1,26,000 of these three-wheelers.
- A **longer-term policy** priority has to be the **setting up of lithium battery production and solar charging infrastructure** of a scale that matches the ambition. The Centre has accepted some of the demands of the auto industry to popularize EVs.
- The government should provide **incentives for CNG vehicles** and should also come out with a **scrappage plan for vehicles** to incentivize customers to buy new vehicles.

Conclusion

While various incentives have been provided by the government and new policies are being implemented, it is important that these policies not only focus on reducing the upfront costs of owning an EV but also reduce the overall lifetime costs of ownership.

Science and Technology- developments and their applications and effects in everyday life; Achievements of Indians in science & technology; indigenization of technology and developing new technology.

Covid-19 responses show need to revisit India's drone policy, do you think our drone policy is in tune with the emerging scenario? Give your opinion with suitable justifications. (250 words)

References: [Economic Times](#)

Introduction:

Villages, cities and even entire countries are locked down because of the Covid-19 pandemic, exposing big holes in local supply chains and in how governments access people across dense urban clusters and remote village areas. Incidentally, as it often happens in emergencies, it also uncovered



our ingenuity in finding new and useful applications for available things and technologies. Like, how we use unmanned aerial vehicles (UAV), commonly called drones.

The Director General of Civil Aviation has finally announced its policy for remotely piloted aircraft or drones, which came into effect from December 1, 2018. The new policy defined what will be classified as remotely piloted aircraft, how they can be flown and the restrictions they will have to operate under.

Body:

Usage of drones in times of COVID-19 pandemic:

- Pictures and news reports from the world over showed authorities putting drones to a variety of uses while tackling the pandemic.
- They were used for surveillance and monitoring during lockdowns, for broadcasting important messages, for tracking down violators of restrictions, for decontamination of hotspots, for delivery of medicines and some essential items.
- Right now, a Chennai-based company is using drones to disinfect areas specified by the Chhattisgarh government.
- The police in Spain and in some Indian states are using drones with attached sirens and loudspeakers to warn residents to stay home.
- China used drones for transporting medical equipment to contagious areas with minimal risk.

Extra information: Drone policy details:

Who can fly?

- *The policy also stipulates that RPAs shall be flown only by someone over 18 years of age, having passed 10th exam in English, and undergone ground/ practical training as approved by DGCA.*
- *Under the new framework, civilian users seeking UIN/UAOP have to be Indian citizens.*
- *Companies seeking permits for commercial use must be registered in India, with two-thirds of the board members, including the chairman, being Indian nationals. Their primary place of business must be India and "substantial ownership" and this has not been defined must be resting with Indian nationals.*
- ***The basic operating procedure will restrict drone flights to the daytime only and that too within Visual Line of Sight (VLOS). This applies to all categories.***
- ***Also, along with other SOPs, the DGCA has clarified that no remote pilot can operate more than one RPA at any time. Manned aircraft will also get priority. There can't be any human or animal payloads, or anything hazardous. It cannot in any manner cause danger to people or property. An insurance will be mandatory to cover third-party damage.***

Where can drones not be flown?

- *RPAs cannot be flown within 5km of the perimeters of the airports in Mumbai, Delhi, Chennai, Kolkata, Bengaluru and Hyderabad and within 3km from the perimeter of any other airport.*
- *It cannot fly within permanent or temporary Prohibited, Restricted and Danger Areas and within 25km from international border which includes the Line of Control (LoC), Line of Actual Control (LAC) and Actual Ground Position Line (AGPL).*
- *It cannot fly beyond 500 m into sea from the coast line and within 3 km from perimeter of military installations.*
- *It also cannot be operated from a mobile platform such as a moving vehicle, ship or aircraft.*



- *Eco-sensitive zones around National Parks and Wildlife Sanctuaries are off-limits without prior permission.*
- *Violations will be acted on under relevant sections of the IPC and the Aircraft Act 1934.*

Need to align the drone policy in tune with changing times:

- There is a need to introduce a few changes for faster adoption of drone technology by government agencies providing emergency services.
- For instance, to deploy drones at present, government agencies like the fire department, police and NDMA need to take permission from the DGCA and AAI 24 hours in advance under the no permission no take-off (NPNT) regulation.
- If the emergency necessitates a faster response and cannot be predicted, these agencies should be exempt from NPNT.
- The security risk here is addressed because the agencies are mostly state bodies themselves or are at least aiding the government for public good.
- Hence misuse by rogue operators is out of question.

Way forward:

- Going forward, drones could be integrated into emergency response mechanisms called “cobotic responses”.
- These are responses in which humans cooperate with robots (effectively drones are robots).
- This could be the future, and even the new normal, and may even open up several possibilities.
- Imagine being able to go to the site of a nuclear accident like that in Fukushima with a drone capable of detection and resolution.
- India must also examine prevailing policy mechanisms in other countries to adopt their best practices as it formalises its regulatory framework. However, a point to be underlined is that guidelines alone are not sufficient so the key is ensuring implementation and compliance.
- Flying drones safely in India will require research and development to understand how they can be best used in India’s unique landscape.
- The government needs to create the right ecosystem for drone operations to add to the economy’s automation dividend.

Discuss the possible role that AI can play in revolutionizing the mining sector in India in near future. (250 words)

Reference: [geography and you](#)

Why this question:

The question is based on the application of AI to the mining sector in the country.

Key demand of the question:

Explain the prospects of AI applications in revolutionizing the mining sector.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain key facts of mining sector.

Body:



To start with, explain what role AI can play in aiding the mining sector in the country. List out the existing challenges facing the mining sector that AI can resolve. Give examples specifically evident of the lacunae in the mining sector.

Conclusion:

Conclude that AI can be the future enabler of mining.

Introduction:

Artificial intelligence (AI) is the branch of computer science concerned with making computers behave like humans. AI refers to the ability of machines to perform cognitive tasks like thinking, perceiving, learning, problem solving and decision

Artificial Intelligence (AI) brings in a host of real-world applications which had earlier merely been a subject of science fiction novels or movies. The breakthroughs such as the Weather Company's to be launched, **the GRAF model** capable of predicting a thunderstorm virtually anywhere on the planet every hour and other such applications are useful. AI has made inroads to automation and decision support systems to complement or augment human abilities.

Body:

Artificial intelligence is helping to transform the mining industry into a safer, more profitable, and more environmentally friendly industry.

Leveraging AI in mining:

- **Mineral exploration**
 - AI is leading to earlier identification for mining companies, which can eliminate time and money spent on wasted exploration as well as increasing discovery potential.
 - Through the use of pattern matching, predictive analytics, and even computer vision systems that can process map and geological data AI is able to analyze vast quantities of data to better predict where to find better resources.
 - With better predictions comes better planning and a better return on investment.
 - The latest mineral exploration technologies have led to more efficient and targeted drilling campaigns, as well as world class discoveries.
- **Drones:**
 - Drones are increasingly being used in the mining industry, becoming a very powerful tool for a wide range of applications.
 - Companies are using drones to scan over their mining operations, keeping an eye on quarry and waste piles, environmental issues, retention and leaching ponds, and pipeline infrastructure.
 - Using machine learning-based computer vision systems, these drones can analyze data collected from the imagery.
 - This gives mining companies continuous, around-the-clock access and monitoring to their facilities in ways not possible with human operation.
- **Autonomous vehicles, trains, aircraft and mines:**



- Mines have always been dangerous places to work. However, to extract the resources we need, we're moving to increasingly more hostile environments to get them.
 - Whether we're extracting coal or minerals miles under the earth, or oil and gas from deep sea drills, or excavating land in arctic zones, we're increasingly putting people into harsh environments.
 - It is much more preferable to put machines and equipment into mines and greatly minimize or eliminate human labor from these harsh conditions.
 - Through the use of AI-powered autonomous systems, mining and energy companies are making greater use of self-controlling machines in harsh environments. This equipment is then able to work without the presence of a human. It is also capable of going to many places that humans just can't physically go.
 - This includes using the most advanced airborne electromagnetic technology, collecting high resolution electromagnetic, magnetic and radiometric data from an autonomous aircraft.
 - This can simultaneously map shallow and deep features at a higher level of resolution than previously possible, enabling them to develop an understanding of an area's geology and fully analyse it before drilling any unnecessary deep holes.
 - Autonomous mining equipment is set to increase overall productivity.
 - In addition, these machines are able to work around the clock without tiring while also minimizing costly and potentially fatal mistakes.
 - Another aspect of these autonomous machines is that they can perform some of the regular inspections needed on the mines.
 - By attaching cameras and sensors to the equipment companies can detect issues in the mine such as gas levels and structural instability. The more frequently that mines can be inspected and the less we need to send human inspectors into a mine, the safer the mining operation is.
- **Reducing environmental impact with AI**
 - Mining by its nature is destructive and has a negative environmental impact. While it isn't possible to completely eliminate the negative environmental impact of mining, it is possible to significantly reduce this impact by managing how resources are extracted, transported, and treated.
 - Cameras and sensors are being deployed around mines, both on the inside and outside to have constant surveillance.
 - These devices are able to monitor excavation, extraction, and general mining activities, keeping tabs on the spread of waste and harmful materials.
 - **Safety and maintenance**
 - Aside from cost savings, AI uses real-time data and analytics to help mining companies prevent accidents and injuries on the job.
 - If enough high-quality data can be collected, the applied technology should be able to predict failures transforming preventative maintenance into predictive maintenance.



Conclusion:

It is clear that the use of robotics, AI and machine learning can significantly help save costs, increase efficiency, improve safety, increase discovery potential and many other benefits for mining companies. What has held them back was the data challenge, as being able to extract and make actionable insights from a large amount of data has often been too difficult. However, mining companies are now working on scaling the use of AI in mining and we will start to see more sophisticated use of AI in the mining industry.

Discuss the problems and prospects of Hyperloop as fifth mode of transportation.(250 words)

Reference: [Live Mint](#)

Why this question:

The question is based on the applications of technology to effect everyday life.

Key demand of the question:

Explain the problems and prospects of Hyperloop as fifth mode of transportation.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain what you understand by Hyperloop.

Body:

A Hyperloop is a proposed mode of passenger and/or freight transportation which has a sealed tube or system of tubes through which a pod may travel free of air resistance or friction conveying people or objects at high speed while being very efficient. The idea was first mooted by Elon Musk, CEO of SpaceX and Tesla, who gave a white paper on it in the year 2013. Discuss then what the expected benefits in detail are. Explain and elucidate upon the possible challenges involved in realizing the goal of making it the fifth mode of transport.

Conclusion:

With the rising population and increasing congestion, Transport Oriented Development (TOD) is the need of the hour in which Hyperloop like transportation can play a major role. However, much is needed to be done before it can become a reality.

Introduction:

Hyperloop technology is a transportation system where a pod-like vehicle is propelled through a near-vacuum tube connecting cities at speeds matching that of an aircraft. The hyperloop concept is a brainchild of Tesla founder Elon Musk. "It is based on vactrain concept which employs magnetically levitating trains in the form of capsules in the evacuated (airless) or partly evacuated tubes. India's first Hyperloop project is coming up in the state of Andhra Pradesh. Elon Musk's revolutionary transport idea

will be connecting the city centres, Vijayawada and Amaravati.

Body:



Travelling in a Tube

THE TECHNOLOGY

A capsule, with passengers, travels at speeds of more than **1200 KM/H** inside a vacuum tube

Vacuum tube has an area of **LOW PRESSURE INSIDE IT**

INDIA PLANS

Hyperloop can be built in India in **38 MONTHS**

Globally, **800 ENGINEERS** working on the Hyperloop, of which **25 ARE FROM INDIA**

It uses power from **RENEWABLE ENERGY** sources like solar energy, regenerative braking & wind power

These tubes stand on pylons that can **WITHSTAND** quakes & crashes

Operation:

- In hyperloop transportation, custom-designed capsules or pods are expected to zip smoothly through continuous steel tubes which are held at partial vacuum.
- The pod which sandwiches the passenger compartment between an air compressor upfront and a battery compartment in the rear is supported by air caster skis at the bottom.
- The skis float on a thin layer of air provided under high pressure, eliminating rolling resistance and allowing for movement of the pods at high speeds.
- These capsules are expected to be driverless with estimated speeds of 1,000 km/h. Linear induction motors that are placed along the tube control the speed of the pod. Electronically-assisted acceleration and braking determines the speed of the capsule.
- This speed is more than two and a half times the top speed of the world's fastest train, the Shanghai Maglev (267 mph or 430 km/h), and some 200 mph faster than the cruising speed of a commercial jetliner (460-575 mph/740-925 km/h).

Prospects:

- A major advantage of the hyperloop tube concept is its potential for extremely efficient transportation on a large scale.
- The technology offers very fast speed of transportation which is twice that of aircraft.
- The hyperloop can be powered mostly or entirely by renewable energy. If powered entirely by solar and wind power, the net emissions of the hyperloop are practically zero.
- It has very low power consumption.
- It is low cost transportation system on long run. Compared to high-speed rail travel, Hyperloops potentially need far less ground space to construct their tunnels and far less energy to transport the pods than conventional trains.
- It is resistant to earthquakes.



- It is safe mode of transportation system.
- It has smaller civil engineering footprint, with no direct emissions or noise compared to railways

Challenges:

- Constructing tube hundreds of kilometers long would be an engineering marvel in of itself. However, introducing tube hundreds of kilometers long that operates at a near perfect vacuum which can support the force of capsule weighing thousands of kilograms as it travels hundreds of kilometers an hour is nothing short of sci-fi fantasy.
- Small scale experiments reveal the fundamentals of the idea are sound. Although, in the real world, there are tens of thousands of kilograms of atmospheric pressure which threatens to crush any vacuum chamber.
- There is also the problem with thermal expansion which threatens to buckle any large structure without proper thermal expansion capabilities.
- The Hyperloop would also be stupendously expensive. There are many unavoidable problems facing the Hyperloop that threaten the structural integrity, and every human life on board. The problems can be addressed, but at a great cost.
- Initial cost of investment to have the system in place is very high.
- Land use rights will be concern for deployment of the project.
- It has very high risk to life when something wrong happens to the system.
- It has limited space in the train and hence people cannot move freely.

Conclusion:

The technology is nascent as no hyperloop has actually been developed on a long distance. India has time to develop expertise in the field. Partnerships with companies like HTT and Virgin Hyperloop will help India decide as to how the technology can be cost effective. Also, meanwhile improving basic necessities like food, access to energy and house should be focused.

What are the biggest challenges facing online education today? How do you overcome challenges in online learning?(250 words)

Reference: [Indian Express](#)

Why this question:

The article talks about Indian education sector switching gears to the online education system amidst the Covid times.

Key demand of the question:

One has to evaluate the challenges facing the e-learning aspects of education in India today and what solutions need to be figured out to address the same.

Structure of the answer:**Introduction:**

Briefly explain the current scenario of education across the world.

Body:

To start with, explain that It shouldn't have taken a global pandemic for Indian education to explore online teaching and learning. Challenges lie ahead. Explain that Comparing face-to-face learning with online learning brings forth significant deficiencies in the online mode such as lack



of human connect, absence of opportunities of collaborative learning, teacher supervision and the most glaring being lack of opportunities for hands-on learning in complex subjects such as science.

Conclusion:

Conclude by suggesting solutions to address these key concerns.

Introduction:

The coronavirus pandemic has shuttered educational institutions across the globe. Closure of schools, colleges and universities, shutdown of routine life of students and teachers, disruptions in education and the education ministry remaining incommunicado, have created an unprecedented situation and thrown many unexpected challenges to administrators, educators, teachers, parents and students.

Body:

Impacts on education due to COVID-19 pandemic:

- school and university closures will not only have a short-term impact on the continuity of learning for more than 285 million young learners in India but also engender far-reaching economic and societal consequences.
- The pandemic has significantly disrupted the higher education sector as well, which is a critical determinant of a country's economic future.
- A large number of Indian students—second only to China—enroll in universities abroad, especially in countries worst affected by the pandemic, the US, UK, Australia and China.
- Many such students have now been barred from leaving these countries. If the situation persists, in the long run, a decline in the demand for international higher education is expected.
- The bigger concern, however, on everybody's mind is the effect of the disease on the employment rate. Recent graduates in India are fearing withdrawal of job offers from corporates because of the current situation.
- The Centre for Monitoring Indian Economy's estimates on unemployment shot up from 8.4% in mid-March to 23% in early April and the urban unemployment rate to 30.9%.

Challenges:

- India is far behind some developing countries where digital education is getting increased attention.
- In countries where e-learning is popular, students have access to various online resources such as Massive Open Online Courses (MOOCs) which help students, teachers and professionals upgrade their skills.
- The major challenge in EdTech reforms at the national level is the seamless integration of technology in the present Indian education system, which is the most diverse and largest in the world with more than 15 lakh schools and 50,000 higher education institutions.
- Further, it is also important to establish quality assurance mechanisms and quality benchmark for online learning developed and offered by India HEIs as well as e-learning platforms (growing rapidly).
- Many e-learning players offer multiple courses on the same subjects with different levels of certifications, methodology and assessment parameters. So, the quality of courses may differ across different e-learning platforms.



- Democratization of technology is now an important issue, comprising internet connectivity, telecom infrastructure, affordability of online system, availability of laptop/desktop, software, educational tools, online assessment tools, etc.
- Since our education system has not trained our teachers and students to think creatively and manage in a crisis situation, and has underplayed the importance of e-learning, they are unprepared for the transition from the classroom to online.
- Parents feel too pressed, having to support their children's classes while working from home themselves.
- The physical classroom does not only impart the syllabus. Children are also socialised, and there is an element of sport and play which is absent in virtual learning.
- The matrix for socialisation is not replicated on an LCD screen.
- Poor are disconnected and irrespective of background, some children cannot relate to the online classroom, and many more are losing out on midday meals.

Measures needed:

- There should be ease of digital access and the ability of parents to support learning at home.
- Online classes offered as live teaching can be sustained only with a mix of activities, worksheets and interactive sessions.
- Teachers should have a structured plan which does not suffocate or burden them and also keep the students involved.
- All institutions will have to chalk out an infrastructure plan which can be used in such a crisis.
- Teachers need to be considerate about how children feel or what they are going through these days so an understanding should be developed.

Going forward, the use of technology in teaching or recruitment will lead to a new era wherein the best of faculty will be available from across the globe to students. Education quality will be gauged not just by the quality of faculty but will also have quality of IT infrastructure and familiarization of the faculty with digital teaching technologies as important parameters.

Conclusion:

To summarize, education must continue. Students should keep learning. The lockdown period should be productive. Educators should think creatively and introduce innovative ways of learning. In a country where access to the Internet and high-speed connectivity is a problem, and the digital divide is an issue, it is important to address the challenges. Those who are involved in education planning and administration should give a serious thought to reducing the digital divide in the country and popularize digital learning.

Cloud applications have become a necessity for business continuity in today's world, do you agree? Comment.(250 words)

Reference: [Financial Express](#)

Why this question:

The article talks about ever rising use of cloud applications to all the business communities.

Key demand of the question:

Explain the importance of cloud applications in today's world with special focus on their importance to business communities.

Directive:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

**Introduction:**

Start by explaining what cloud applications are.

Body:

Cloud computing is the on-demand availability of computer system resources, especially data storage (cloud storage) and computing power, without direct active management by the user. Today it has become more important than ever for the organisations to have a strong foundation in place for their business systems as there are challenges pertaining to business continuity, cash-flow, and supply-chain. Explain why it has become essential to the Businesses of today.

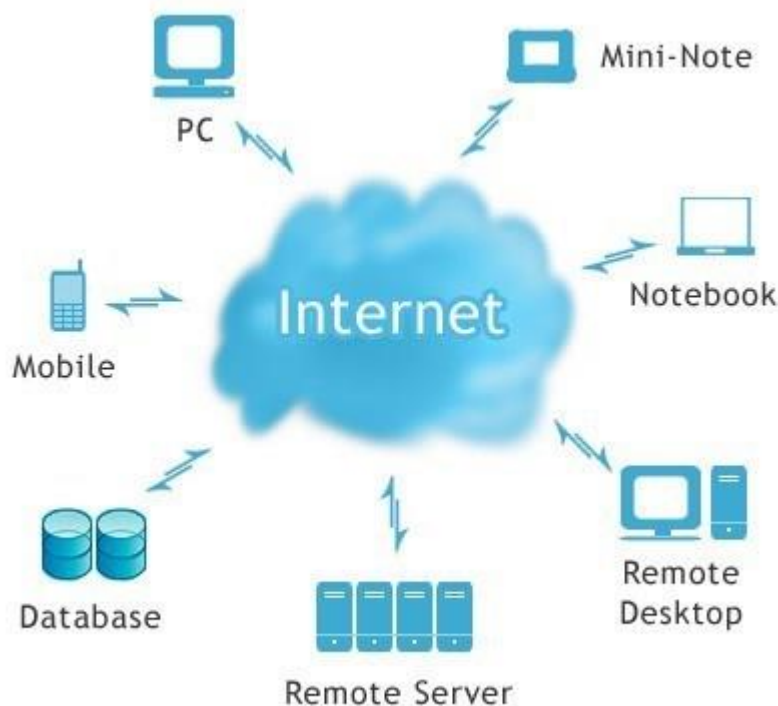
Conclusion:

Conclude by reasserting the significance of such a technology.

Introduction:

Cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet (“the cloud”) to offer faster innovation, flexible resources, and economies of scale.

Body:



In general, there are three cloud computing characteristics that are common among all cloud-computing vendors:

- The back-end of the application (especially hardware) is completely managed by a cloud vendor.
- A user only pays for services used (memory, processing time and bandwidth, etc.).
- Services are scalable

It is common to categorize cloud computing services as infrastructure as a service (IaaS), platform as a service (PaaS) or software as a service (SaaS)

Cloud computing in today's times:



- Due to the covid-19 pandemic, many companies have asked their employees to work remotely.
- This change has brought new ways of working digitally and some teams have experienced an easier transition than others with the help of cloud technology that is automating their business processes and allowing them to better cope with closing the books, remotely.
- In times like these, it is important that businesses continue to innovate and pivot in order to achieve their business goals.
- Managing core processes and customer experience data on a single platform helps create operational efficiency, improves insights, enhances decision-making and enables businesses to be nimble and outpace market changes.
- A modern suite of software as a service (SaaS) applications provides a complete, agile, secure, and integrated solution for an entire business, across functions.
- Highly customized, on-premises solutions are siloed and often require multiyear deployments lack the agility, speed, interoperability, and simplicity required to tap into the business benefits of technologies such as Artificial Intelligence (AI), digital assistants and Internet of Things (IoT).
- This is why many organizations are turning to SaaS consumption models to more easily “turn on” “pay as you use” subscription models.
- Many organizations and their HR teams are facing new and unprecedented challenges. Most have never operated with remote employees and are looking to find the best solution to make their employees’ work-from-home experience an easy and a productive one.
- **Human capital management (HCM) applications** can help by removing functional limitations and providing high-security platforms that can support business continuity anytime, anywhere and on any device.

Limitations:

- With all of the speed, efficiencies, and innovations that come with cloud computing, there are naturally risks.
- **Security** has always been a big concern with the cloud especially when it comes to sensitive medical records and financial information.
- While regulations force cloud computing services to shore up their security and compliance measures, it remains an ongoing issue. Encryption protects vital information, but if that encryption key is lost, the data disappears.
- Servers maintained by cloud computing companies may fall victim to natural disasters, internal bugs, and power outages, too.
- The geographical reach of cloud computing cuts both ways: A blackout in California could paralyze users in New York, and a firm in Texas could lose its data if something causes its Maine-based provider to crash.
- As with any technology, there is a learning curve for both employees and managers. But with many individuals accessing and manipulating information through single portal, inadvertent mistakes can transfer across an entire system.
- **Maintenance costs:** While the upfront or capital cost for the cloud-based server is very low compared to traditional hosting, the cloud server requires the same amount to be paid each month to maintain both servers as well as data.
- **Internet connectivity:** For cloud-based services, consistent internet connection is important because if any one of the cloud-based service providers loses connectivity, then the company will be out of business until that internet connection returns.
- A common argument from critics is that cloud computing cannot succeed because it means that organizations must **lose control of their data**, such as an email provider that stores data in



multiple locations around the world. A large regulated company, like a bank, might be required to store data in the United States.

Conclusion:

Cloud computing proponents point to it being a new paradigm in software development, where smaller organizations have access to processing power, storage and business processes that were once only available to large enterprises. It has immense potential in the field of E-governance, Telecom, Banking, Manufacturing and other sectors.

Case studies of how cloud computing is helping today:

- **SRL Diagnostics** is an example of how technology can be used to enable business continuity. This laboratory is using Oracle Service Cloud to manage a high volume of queries from their patients coming through to their website, mobile app and calls to the customer service center. Patients can now receive results of any tests within 24 hours via various digital channels like email, etc.
- **Save the Children** is working round-the-clock to make sure that life gets a little easier for underprivileged sections of the society. The NPO is using Oracle ERP Cloud and Oracle Human Capital Management (HCM) Cloud to enable seamless flow of supplies, resources, funds and procurement and make sure that there is no disruption in the relief work.
- **Hindalco Industries**, a flagship aluminium and copper manufacturing company, used to face multiple challenges when it came to seamless collection of data from various locations and then filing financial reports on a real-time basis. Hindalco adopted Oracle Enterprise Performance Management (EPM) Cloud and streamlined their financial management and regulatory reports by utilising the power of data and smart automation in a cost-effective manner.



Awareness in the fields of IT, Space, Computers, robotics, nano-technology, bio-technology and issues relating to intellectual property rights.

Discuss the long standing issues with respect to Intellectual property enforcement and protection in India, suggest solutions to address the same.(250 words)

Reference: [The Hindu](#)

Why this question:

India continues to be on the 'Priority Watch List' of the United States Trade Representative (USTR) for lack of adequate intellectual property (IP) rights protection and enforcement, the USTR said in its Annual Special 301 Report. Thus the question.

Key demand of the question:

Explain the long standing issues with respect to Intellectual property enforcement and protection in India, suggest solutions to address the same

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Present brief description of the current IP regime in the country.

Body:

To start with explain the facts pointed out by the report; India remained one of the most challenging economies for IP enforcement and protection. While India made "meaningful progress" to enhance IP protection and enforcement in some areas over the past year, it did not resolve recent and long-standing challenges, and created new ones.

Discuss the concerns pointed out such as – innovators being able to receive, maintain and enforce patents particularly in the pharmaceutical sector;

Concerns over copyright laws not incentivizing the creation and commercialization of content; and an outdated trade secrets framework.

Suggest solutions to these issues.

Conclusion:

Conclude with way ahead.

Introduction:

Intellectual Property Rights (IPRs) are legal rights, which result from intellectual invention, innovation and discovery in the industrial, scientific, literary and artistic fields. These rights entitle an individual or group to the moral and economic rights of creators in their creation.

India continues to be on the 'Priority Watch List' of the United States Trade Representative (USTR) for lack of adequate intellectual property (IP) rights protection and enforcement, the USTR said in its Annual Special 301 Report, released recently.

Body:

The National IPR Policy (2016) is a vision document that aims to create and exploit synergies between all forms of intellectual property (IP), concerned statutes and agencies. It sets in place an institutional mechanism for implementation, monitoring and review. It aims to incorporate and adapt global best practices to the Indian scenario.

Some of the long standing issues of IPR regime in India:



- Innovators being able to receive, maintain and enforce patents particularly in the pharmaceutical sector; concerns over copyright laws not incentivizing the creation and commercialization of content
- India has an outdated trade secrets framework.
- India also further restricted the transparency of information provided on state-issued pharmaceutical manufacturing licenses, continues to apply restrictive patentability criteria to reject pharmaceutical patents.
- India has still has not established an effective system for protecting against the unfair commercial use, as well as the unauthorized disclosure, of undisclosed test or other data generated to obtain marketing approval for pharmaceuticals and certain agricultural chemical products
- India maintains extremely high customs duties directed to IP-intensive products such as medical devices, pharmaceuticals, Information and Communications Technology (ICT) products, solar energy equipment, and capital goods. These goods categories have been persistent challenges in trade talks between US and India.
- weak enforcement by courts and the police, lack of familiarity with investigative techniques and no centralized IP enforcement agency.
- The USTR also noted that India was ranked among the top five source economies for fake goods by the Organization of Economic Development and Cooperation (OECD) in 2019.
- The government's 2019 draft Copyright Amendment Rules, if implemented, would have "severe" consequences for Internet-content rights holders as the proposed rules broadened the scope of compulsory licensing from radio and television broadcasting to online broadcasting.
- Trademark counterfeiting levels were "problematic" and there are "excessive delays" in obtaining trademarks due to a lack of examination quality.

Measures taken to strengthen the IPR regime in India:

- The statutes governing different kinds of IPRs in India are **Patents Act, 1970; Trade Marks Act, 1999; Designs Act, 2000; Geographical Indications of Goods (Registration and Protection) Act, 1999; Copyright Act, 1957; Protection of Plant Varieties and Farmers' Rights Act, 2001; Semiconductor Integrated Circuits Layout-Design Act, 2000 and Biological Diversity Act, 2002.**
- The **Department of Industrial Policy and Promotion (DIPP)** is entrusted with matters concerning the specialized UN agency on IPRs, the World Intellectual Property Organization (WIPO), including coordination with other concerned Ministries or Departments.
- The **Controller General of Patents, Designs and Trade Marks (CGPDTM)** under the Department of Industrial Policy and Promotion, Ministry of Commerce and Industry is entrusted with the responsibility of administering the laws relating to Patents, Designs, Trade Marks and Geographical Indications within the territory of India.
- The **Protection of Plant Varieties and Farmers' Rights Act, 2001** is a sui generis legislation in India providing protection for plant varieties and rights of farmers and is under the aegis of the Ministry of Agriculture.
- The preservation of biological diversity in India is under the Ministry of Environment and Forests; the **Biological Diversity Act 2002** provides mechanism for regulating access and ensuring fair and equitable sharing of benefits arising out of the use of biological resources and associated traditional knowledge.
- India has always been conscious of its obligations in the international arena, and has acceded to a number of international conventions to further the cause of IPRs globally.



- India was the first country to ratify the **Marrakesh Treaty 2013 for Access to Published Works by visually impaired persons**.
- The accession to the **Madrid Protocol in 2013** is a step towards global alignment for proprietors of marks.
- The **Indian Patent Office** has been recognized as an **International Search Authority** and an **International Preliminary Examination Authority**.
- **The Intellectual Property Appellate Board** hears appeals arising from the decisions of Controllers of Patents as also Registrars of Trade Marks and GIs.

Way forward:

- Fostering an environment where innovation flourishes and a knowledge economy is built, is the key idea. Hence, the policy should have a balance.
- It should encourage patenting and at the same time ensure that patentability of a product/process does not deter further innovation and progress.
- Intellectual Property must not be about patents on paper but dearth of application in reality.
- The organizations such as CSIR and others must be encouraged to work upon socially useful applications of their patents.
- Support for innovation has to be accompanied with instruments that guard local companies against the misuse of market power, coercive bargaining and aggressive acquisition strategies.
- India needs to spread awareness on IPR in public and for its traditional industries to enable fair monetization of IP Rights.
- It needs to safeguard its patents, copyrights and traditional knowledge by ensuring easy IPR rules.

Examine the idea of creation of the 'PPP pandemic patent pool' at a global level, to pool all innovations, also analyse if it is necessary to ensure Intellectual Protection regimes do not outweigh public health interests of the world. (250 words)

Reference: [The Hindu](#)

Why this question:

The question is based on the premise of Vaccine and medicine for COVID-19, and need for a PPP pandemic patent pool.

Key demand of the question:

Explain the significance of 'PPP pandemic patent pool' and in what way it is time to reflect upon the role of intellectual property (IP) in the [ongoing health crisis](#) and dedicate IP to finding a solution.

Directive:

Examine – When asked to 'Examine', we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Present briefly the background of the question.

Body:

To start with discuss what the idea of patent pool implies. Then explain the fact that creating a patent pool will give all countries the right to implement innovations without further permission from patent holders. Explain how it becomes important to ensure Intellectual Protection regimes do not outweigh public health interests.

Conclusion:

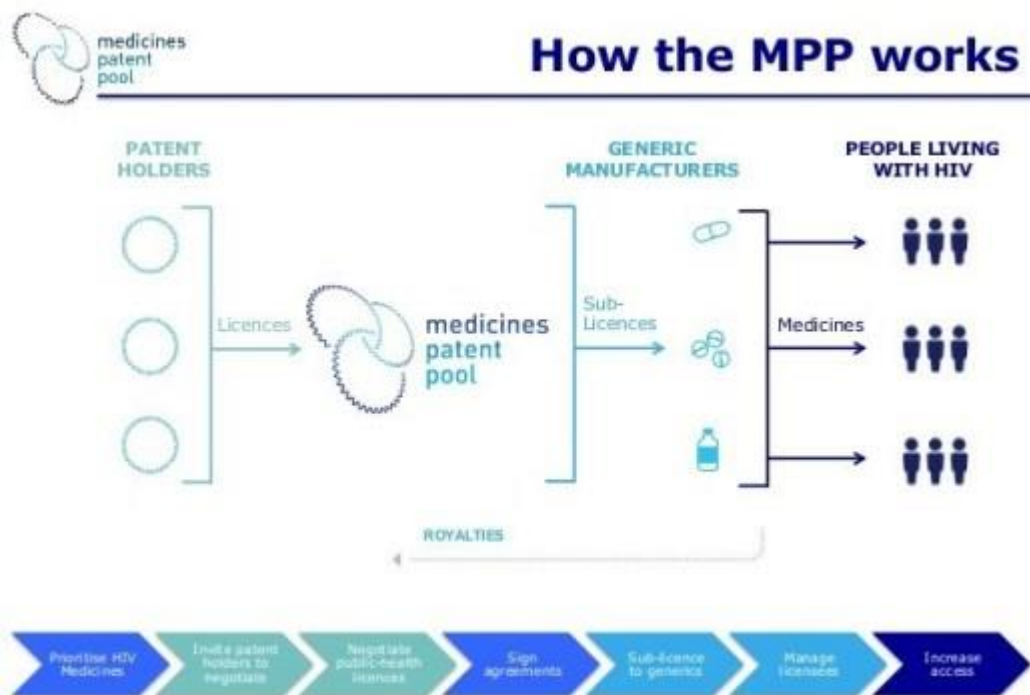
Conclude with significance of the idea of the 'PPP pandemic patent pool' and its relevance.



Introduction:

World Intellectual Property Day, celebrated every April 26, provided us an opportunity to reflect upon the role of intellectual property (IP) in the ongoing health crisis and dedicate IP to finding a solution. The purpose of creating and recognising patent rights is for the common public good, i.e., innovation should be made public in exchange for a limited monopoly. Thus, patents need to be disclosed to the public in order to enable further research.

Body:



Patent rights are detrimental to society:

- With the outbreak of COVID-19, there are several innovations. All these innovations may be the subject matter of patent applications around the world.
- It will be a few years before patents are even granted. However, friction already exists among various stakeholders.
- For instance, one country made attempts to obtain exclusive rights to a vaccine being developed. On the other hand, there are also collaborations taking place.
- However, the spirit of collaborative solutions is only on the anvil. The question that arises is whether the exclusivity that is recognised by patent rights will be detrimental to society.

Covid-19 and patent rights – a use case:

- For human life to become normal again, vaccines or medicines are the only permanent solutions.
- However, even by conservative estimates, it will take at least 6-10 months for any vaccine/drug to be available.
- Even when approval for marketing of a vaccine/drug is granted, it will be impossible for it to be made instantly available across the world.



- This is because even after approval for commercial production is granted, say, in one country, in order for the product to be available to the rest of the world, approvals will be required in each and every country.
- Then countries will have to gear up for instant manufacturing and marketing of the drug.
- For this to happen, continuous dialogue has to take place among innovators, manufacturers and supply chains. This requires massive efforts by private players, governments and international organisations.

Patents – roadblocks or solutions:

- Pandemics need disruptive solutions. Governments and international organisations need to arrive at a consensus in advance to ensure that the system is ready. Procrastination would be disastrous.
- Creating hindrances through exclusivity claims, in the wake of a pandemic, will result in dividing countries, corporations and international organisations.
- This will not benefit patients and the world as a whole. If patent owners create impediments on the strength of patent rights, the world will start despising patents and that is not a situation IP owner ought to be in.
- Under the TRIPS (Trade-Related Aspects of Intellectual Property Rights) regime, there are several tools such as compulsory licensing that are available to ensure access to medicines.
- However, beyond the laws, society needs to respect innovation. To protect the sanctity and integrity of patent systems, and in order to ensure that an anti-IP sentiment is not generated globally, answers need to be found within the existing regime.
- In exceptional circumstances such as these, there is a likelihood that societies may resort to extreme steps to protect themselves. Before such ideas are floated, solutions should be created.

Way forward:

- The purpose of creating and recognizing patent rights is for the common public good, i.e., innovation should be made public in exchange for a limited monopoly.
- Thus, patents need to be disclosed to the public in order to enable further research.
- Public-private partnerships (PPP) need to be scaled up. Creation of the 'PPP-pandemic patent pool' at a global level, to pool all innovations, is the way forward. Let us not wait any longer.
- Pooling of patent resources is also in line with the Doha Declaration on Public Health which is a part of the TRIPS agreement.
- This declaration recognizes the need for taking measures to 'protect public health' and 'promote access to medicines'.

Conclusion:

Creation of a pool and immediate licensing will ensure that there are hundreds of manufacturers across the world. As a result, vaccines and medicines will be quickly available. Such a pool needs the cooperation of not just countries and international organizations but also the hundreds of researchers, innovators, companies and universities involved. Concerns relating to patents and profits to be earned therefrom should be put aside. The world has to come out of this crisis quickly and patents ought to accelerate rather than impede the path. Combating the crisis and earning collectively is the need of the hour.



Conservation, environmental pollution and degradation, environmental impact assessment.

Critically examine the impact of algal blooms on the economies and societies of countries surrounding the Arabian Sea.(250 words)

Reference: [Live Mint](#)

Why this question:

The article talks about New study, entitled Ecosystem state change in the Arabian Sea fuelled by the recent loss of snow over the Himalayan- Tibetan plateau region and brings out insights of the impact of it.

Key demand of the question:

One must present a critical examination of the impact of algal blooms on the economies and societies of countries surrounding the Arabian Sea.

Directive:

Critically examine – When asked to ‘Examine’, we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgment.

Structure of the answer:

Introduction:

From over almost two decades there is exponential spread of tiny plankton i.e. Noctiluca scintillans in the Arabian sea.

Body:

To start with explain what is Algal bloom, Algal bloom is the rapid increase of algae in the fresh and marine waters which depletes the supply of oxygen leading to the death of marine life. This rapid spread of algal bloom has negative implications on the countries around the Arabian Sea. Discuss then the implications of it on the countries surrounding Arabian sea are India, Yemen, Oman, Iran, Sri Lanka, Maldives etc.

Conclusion:

Conclude that thus countries surrounding the Arabian sea have far reaching economical and societal implications due to the massive growth of algal blooms.

Introduction:

An algal bloom or marine bloom or water bloom is a rapid increase in the population of algae in an aquatic system. Algal blooms may occur in freshwater as well as marine environments. Blooms which can injure animals or the ecology are called “harmful algal blooms(HAB)”. Harmful Algal Bloom can lead to fish die-offs, cities cutting off water to residents, or states having to close fisheries.

The new study, entitled Ecosystem state change in the Arabian Sea fueled by the recent loss of snow over the Himalayan- Tibetan plateau region, is an unusually all-encompassing snapshot of the interconnected impacts of climate change.

Body:

Linkage between global warming and algal blooms:

- According to the study, global warming has exerted a disproportionately strong influence on the Eurasian land surface, causing a steady decline in snow cover [in the Himalayas].



- This has disrupted “winter convective mixing” which occurs when cold winter winds blow over the Arabian Sea, driving the surface waters down, which are in turn replaced by nutrient rich waters from below.
- That process allows photosynthetic phytoplankton – the basic building block of our ocean food chain to thrive, along with all the fish species that eventually result in the seafood bounty so many of us rely on.

Effects of Algal Bloom:

- **On economies:**

- HAB events adversely affect commercial and recreational fishing, tourism, and valued habitats, creating a significant impact on local economies and the livelihood of coastal residents.
- Economic concerns associated with HABs include increased drinking-water treatment costs, loss of recreational revenue, loss of aquacultural and fisheries revenue, and livestock sickness or fatalities.
- Taste-and-odor compounds are of particular concern to drinking-water suppliers because of customer dissatisfaction with malodorous drinking water.
- Affects navigation due to increased turbidity, thus impacting the shipping.
- *Case study: The stunning growth in Noctiluca “blooms” has calamitous implications for the economies and societies that surround the Arabian Sea. According to Columbia’s in-house The Earth Institute, “In Oman, desalination plants, oil refineries and natural gas plants are forced to scale down operations because they are choked by Noctiluca blooms, and the jellyfish that swarm to feed on them. The resulting pressure on the marine food supply, and economic security may also have fueled the rise in piracy in countries like Yemen and Somalia.*

- **On Societies:**

- Exposure to algal toxins may occur through consumption of tainted water, fish, or shellfish; recreational activities; or inhalation of aerosolized toxins.
- Algal toxins are known to cause illness immediately (hours to days) after exposure.
- In addition, several algal toxins are believed to be carcinogens or to promote tumor growth, although more research on the effects of long-term exposure is needed.

- **On ecology:**

- Algal Blooms restrict the penetration of sunlight resulting in death of aquatic plants, and hence restricts the replenishment of oxygen.
- The primary consumers like small fish are killed due to oxygen deprivation caused by algal blooms.
- Death of primary consumers adversely affects the food chain and leads to the destruction of higher life forms.
- Loss of coral reefs: Occurs due to decrease in water transparency (increased turbidity).



- **Loss of fresh water lakes:**
 - Eutrophication eventually creates detritus layer in lakes and produces successively shallower depth of surface water.
 - Eventually the water body is reduced into marsh whose plant community is transformed from an aquatic environment to recognizable terrestrial
- **New species invasion:**
 - Eutrophication may cause the ecosystem competitive by transforming the normal limiting nutrient to abundant level. This cause shifting in species composition of ecosystem.
- **Human health:**
 - exposure to Cyanobacteria or their toxins may produce allergic reactions such as skin rashes, eye irritations and respiratory symptoms.
 - The most likely pathway to exposure for humans is through accidental ingestion or inhalation during recreational activities in lakes, rivers and bays.
- A bloom often results in a colour change in the water. Algal blooms can be any colour, but the most common ones are red or brown. These blooms are commonly referred to as red or brown tides.

Impacts on India:

- The stunning growth in Noctiluca “blooms” has calamitous implications for the economies and societies that surround the Arabian Sea.
- The study indicates that countries like India now face an unavoidable reckoning, as the melting of Himalayan and Tibetan glaciers cannot be declined.
- They are central to our weather, food and health security, and feed the rivers that are integral to our culture and identity.

Measures to mitigate eutrophication:

- Treating Industrial effluents domestic sewage to remove nutrient-rich sludge through wastewater processing. Using tertiary sewage treatment methods to remove phosphate and nitrate before discharging the effluent into rivers and lakes
- Riparian buffer: Interfaces between a flowing body of water and land created near the waterways, farms, roads, etc. in an attempt to filter pollution.
- programs to treat wastewater, reduce the overuse of fertilizers in agriculture and reducing the bulk flow of runoff can be effective for reducing severe algal bloom
- Nitrogen testing & modelling: N-Testing is a technique to find the optimum amount of fertilizer required for crop plants. It will reduce the amount of nitrogen lost to the surrounding area.
- Encouraging organic farming.
- Reduction in nitrogen emission from vehicles and power plants.
- Reducing the use of phosphates as builders in detergents
- Aerating lakes and reservoirs to prevent oxygen depletion particularly during algal blooms
- Further, there is a need to monitor the growth of algal bloom using Space technology.

Conclusion:



The algal blooms are threatening food-chains in the regions surrounding Arabian sea. Therefore, countries have to act now, to escape the growing crisis.

Discuss the impact of climate change on the water security of the country and suggest mitigation measures to reduce the impacts.(250 words)

Reference: [The Hindu](#)

Why this question:

The article titled "Water wisdom during a pandemic" brings to us the impact of climate change on the water security of the country.

Key demand of the question:

One must deliberate on the impact of climate change on the water security of the country and suggest measures to mitigate the same.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Discuss in short what is current issue associated with water security in India.

Body:

To start with explain importance of water; Water is the primary medium through which climate change impacts trickle down to the community and individual levels, primarily through reduced predictability of water availability. Then move onto explain the impact of climate change, Increased precipitation and flooding in certain areas and less precipitation and longer and more severe droughts in other areas. Explain the impact all over the geography and expanse of the country. Suggest what needs to be done.

Conclusion:

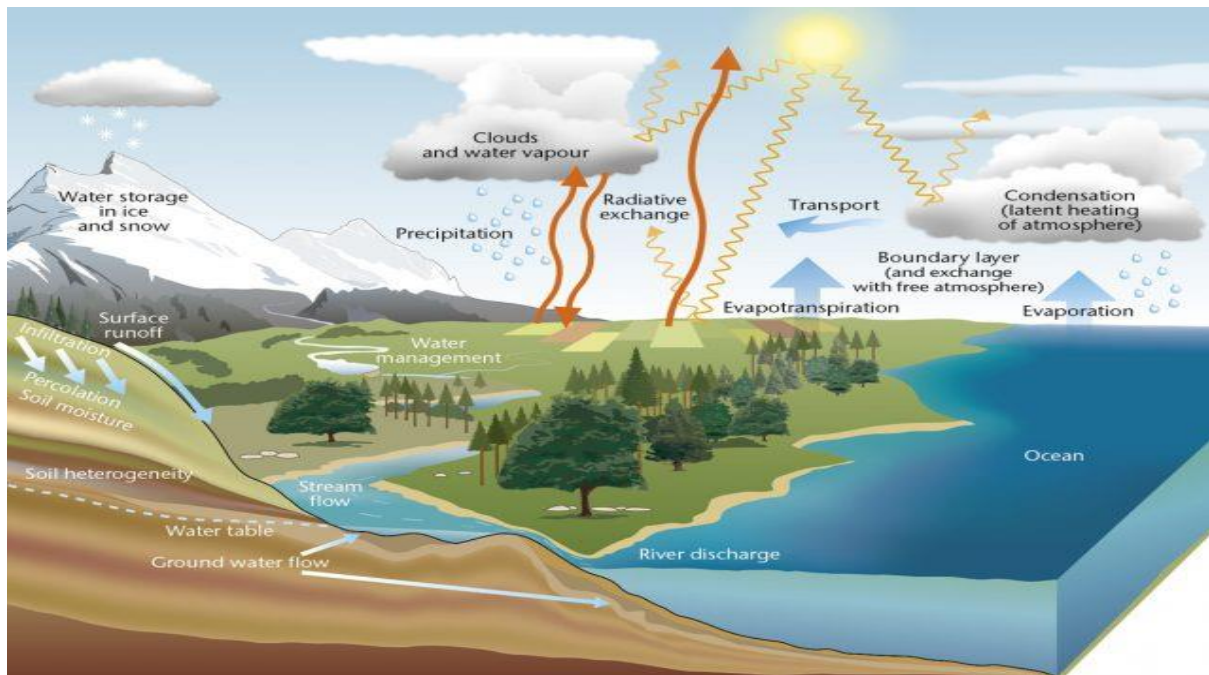
Conclude with solutions to address the issue.

Introduction:

Climate change impacts the world's water in complex ways. Climate change manifests itself primarily through changes in the water cycle. As climate changes, droughts, floods, melting glaciers, sea-level rise and storms intensify or alter, often with severe consequences. Climate change impacts have direct consequences for water security and conflict.

Body:

The 2020 edition of the World Water Development Report (WWDR 2020) entitled 'Water and Climate Change' aims at helping the water community to tackle the challenges of climate change and informing the climate change community about the opportunities that improved water management offers in terms of adaptation and mitigation.



Impact of climate change on water security:

- The ever increasing dependence on ground water and its continuous excessive exploitation is reducing the ground water level and adversely affecting the quality of drinking water supply, which is a complex challenge.
- Drying of water sources, rapid depletion of ground water table, recurrence of drought and deteriorating water management in different states are presenting different types of challenges.
- Repairs of closed bore pumps, water supply pipelines are not being done on time due to which there is a special crisis in the area.
- Due to the pressure of industrialization and urbanization, the sources of water have been destroyed. This worrying aspect was consistently ignored by various governments.
- Fluoride, nitrate, pesticides, etc. were found to be present in more than acceptable limits in the ground water of most cities and about 19,000 villages. Water quality is challenging in this regard.
- Studies sponsored by the World Bank and UNICEF show that not only is drinking water inadequate in rural India but its imbalance is widespread across the country.
- Waterborne diseases are the biggest health challenge in India. According to official statistics published in the National Health Profile of India-2018, about one quarter or four cases reported in India are due to communicable diseases and one in every five deaths is due to waterborne diseases.
- Water crisis has become a major problem in 30 countries of the world and in the next decade about two-thirds of the global population will face extreme water shortage. In real terms water crisis has become a major challenge in India.

Measures needed:

- **Water efficiency:**
 - Incentivize the wider adoption of sprinkler and drip irrigation by diverting resources otherwise used to subsidize power and surface irrigation.
 - Special emphasis should be laid on desilting of water bodies, including river, lakes, ponds and reservoirs.



▪ **Recycle of waste water:**

- With the country generating 140 bcm of wastewater annually, a pilot scheme to irrigate 10 lakh ha with treated waste water by 2020 may initially be taken up.
- Industries should be encouraged to meet a major share of their demand through recycled water. Besides, programmes for smart water meters and tradable permits for use of recycled water may be launched.

▪ **Water harvesting**

• **Watershed development:**

- The MoWR may develop specific strategies to tap water through watershed development (check dams) in rain-fed areas, expand micro irrigation coverage to 80 lakh ha, and link ground water development to aquifer mapping.
- The timeline for watershed development projects needs to be shortened from seven to four years with special efforts by state governments. Funds available under MGNREGA and state plans may be used for watershed development projects.

• **Rainwater harvesting:**

- Model Building Bye Laws, 2016 circulated by Ministry of Urban Development includes the provision of rain water harvesting.
- Barring the states/UTs of Manipur, Sikkim, Mizoram and Lakshadweep, all states have incorporated the provision in their respective Building Bye Laws.

▪ **Groundwater management:**

- As on date, development of groundwater, i.e., utilization of groundwater resources vis-à-vis replenishable quantity, is 62 per cent. There is a need to develop recharging zones at identified places to make groundwater resources sustainable using check dam, farm ponds, tanks and injection wells.
- Special focus should be placed on the quality of rural drinking water supply in arsenic and fluoride affected areas by tapping multiple sources through conjunctive use of surface water, ground water and rain water harvesting. All new, piped water supply schemes should have mandatory provisions on operation and maintenance involving local communities and stakeholders.

Way forward:

▪ India's priority must be:

- To make our irrigation and water systems amenable to modern concepts.
- To complete irrigation and water sector reforms.
- To implement improved water management, governance and regulation practices.
- Pricing system for water: For making people use water efficiently

▪ Bigger program on water efficiency as energy efficiency – Setting standards for water management.



- Ensuring minimal pollution in both urban areas and industry.
- Fixing India's water crisis will need well balanced policies, meticulous strategy and a massive amount of public participation.
- Sugarcane consumes a disproportionate amount of water and water-stressed regions must make an effort to move away from the crop.
- Comprehensive restructuring of India's Central Ground Water Board and the Central Water Commission in order to create a new 21st Century management authority.
- Right to water should mean a high priority to drinking water.
- India has so far seen the water sector in terms of irrigation projects or water schemes. We need to balance between our water-needs and that of the river itself.

Explain the significance of the Environment Impact Assessment (EIA) process in the Indian context. Also highlight the concerns associated with it. (250 words)

Reference: Green norms must be discussed: Cong. The Hindu

Why this question:

The Environment Ministry has extended the deadline for receiving public comments on the draft Environment Impact Assessment (EIA) Notification 2020.

Key demand of the question:

The question is straightforward and aims to analyse the significance of EIA in the India context along with the concerns associated with it.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In short define what EIA is.

Body:

To start with explain the details such as – The EIA Notification 2020 is to replace and supersede the 2006 notification. The new EIA Notification proposes fundamental changes in the environmental regulatory regime in India. Bring out the concerns associated- Concept of post facto clearance, Citizens or the civil society cannot report any violations, the construction sector accounts for a large proportion of the greenhouse gas emissions etc.

Conclusion:

Conclude with solutions to address the issue.

Introduction:

Environmental Impact Assessment (EIA) is an important management tool for ensuring optimal use of natural resources for sustainable development. It covers developmental sectors such as industries, thermal power projects, mining schemes etc. EIA has now been made mandatory under the Environmental (Protection) Act, 1986 for 29 categories of developmental activities involving investments of Rs. 50 crores and above.

Body:

Significance of the EIA:

- EIA reports are a critical component of India's environmental decision-making process.



- It acts as a detailed study of the potential impacts of proposed projects.
- It helps in predicting environmental impacts at an early stage in project planning and design.
- Based on these reports, the Environment Ministry or other relevant regulatory bodies may or may not grant approval to a project.
- The EIA reports are also important to define measures that the project could take in order to contain or offset project impacts.
- EIA-based approvals for most projects also involve the process of conducting public hearings, so that who are likely to be affected can be taken on board before approving the project.
- EIA links environment with development. The goal is to ensure environmentally safe and sustainable development.

Issues Related to EIA:

- Environmental decision-making processes for development projects are supposed to use the best available scientific knowledge to ensure that development does not lead to negative impacts.
- But there are compromised decision-making on development and infrastructure projects.
- Sometimes the EIA reports lack the expected degrees of honesty, owing to bias, corruption, exaggeration and wrong claims.
- EIA reports for the approved “redevelopment” projects in Delhi were prepared by copying from copyrighted papers, web-pages and other EIA reports.
- There are many instances of missing or misleading information which understate the potential impact of the projects.
- Many projects are approved without public consultation.
- Lack of awareness among the local people about the process of EIA, its significance for them, their own rights and responsibilities.
- Most of the time EIA reports are unavailable in local languages, thus local people are unable to decipher the reports, and are misled by the proponents
- Expert Appraisal Committees (EAC) is dominated by ex-bureaucrats and institutional experts rather than eminent environmentalists.
- Very little importance is given to socio-economic issues, including those related to gender.
- In the end, it is citizens who have to bear the brunt.

Way Forward:

- Competent authorities must ensure that a project causes minimal adverse environmental impact and generates maximum social and economic benefits.
- Involving affected people and concerned citizens in environmental decision-making has far reaching effects.
- It allows for democratising environmental governance.
- Participatory processes give opportunities to understand and plan for unforeseen effects.
- In 2009, the **Delhi High Court in Utkarsh Mandal v/s Union of India** upheld that it is the duty of the EACs to consider the merits of the objections raised at the public hearings.
- Women and other vulnerable sections of the society are the first and most affected by consequences of developmental processes and damage to the environment.
- Adverse impacts of development projects can be reduced with the full and equal participation of both genders, particularly women in decision-making processes.



- NGOs, civil society groups and local communities need to build their capacities to use the EIA notification towards better decision making on projects.

Conclusion:

An EIA should not be used just as a means for obtaining an environmental clearance; rather, project proponents should use it as a management tool to assess the soundness of a project plan. The focus of EIA needs to shift from utilization and exploitation of natural resources to conservation of natural resources.

Discuss the relationship between climate change and energy security in the context of India, explain the key issues involved and suggest solutions.(250 words)

Reference: pib.gov.in

Why this question:

The question is in the backdrop of the speech rendered by Dr.Anil Kakodkar on the occasion of National Technology Day.

Key demand of the question:

Explain in detail the relationship between climate change and energy security in the context of India, highlight the key issues involved and suggest solutions to address the same.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Start by explaining what you understand by climate change and energy security.

Body:

Highlight the need for dealing with energy needs in the context of climate crisis. Explain the correlation between HDI and Per Capita Energy Consumption. Emphasize on the need to strike a balance between enhancing the quality of human life as well as keeping a control over the climate crisis. Comment on the aspects of action required.

Conclusion:

Conclude by suggesting solutions; explain that interaction between energy security and climate change at a national level can be an important influence on the positions taken by nation states at international negotiations and that there is need to recognise it and work on it.

Introduction:

Climate change and energy security are both global concerns, and both feature routinely in public policy discourses around the world. **India needs a 30-fold increase in renewable energy, 30-fold increase in nuclear energy and doubling of thermal energy, making 70% of energy carbon-free.**

Global climate change is expected to have severe effects on world energy production and consumption. These effects will impact energy security, as well as economic and social security within India. Adaptation and mitigation measures are required to address some of the challenges on energy systems presented by climate change. The challenge before India is how to meet its energy requirements without compromising the ecology of the country.

Body:

Relationship between Climate Change on energy security in the India:

- **Increasing Energy Demand:** Climate change has already started influencing energy demand in most sectors.



- India imports 80 percent of its oil needs and is the third largest oil consumer in the entire world.
 - India's energy consumption is expected to grow 4.5 percent every year for the next 25 years.
 - Recently due to high International Crude Oil Prices, Current Account Deficit (CAD) inflated because of higher cost of oil import, raising concerns about long term economic stability in India, highlighting importance of energy security
 - Air conditioning, urbanisation, increased demand for goods etc are among daily life processes that have increased energy demand to cope with increasingly extreme temperature variations. Energy supply will be affected as the global climate is altered.
 - Also, countries are forced to rely more on energy-intensive methods of providing sufficient water supplies. This effect of climate change drives increasing energy demand and elevates costs.
 - Agricultural practices are affected by temperature changes as farmers become more dependent on more energy-intensive methods in order to maintain productivity levels.
 - Higher temperatures decrease the ability of laborers to work healthily in open-air conditions. Hours of operation for some businesses are therefore changing, for example to earlier or later hours in the day. This change in productivity hours may lead to growing overall energy consumption.
- **Reducing Energy Supply:** Energy supply has been negatively affected by changing weather patterns.
 - As water reservoirs decrease due to lower precipitation and increased evaporation, capacity for electricity production from hydropower and other water-intensive generation technologies may decline.
 - Decreasing water availability can also negatively affect cooling and cleaning systems required for Solar Power, nuclear power, and various other thermal generation technologies.
 - **Impact on energy Infrastructure:** The existing energy infrastructure in India is not designed to cope with the effects of climate change and as a result risks of system failures are manifesting themselves through increasing numbers of energy outages.
 - **Impact on the Transportation sector:** The existing transportation infrastructure is currently not designed to address the challenges of climate change and is not adequate for meeting the expected increasing needs of its societies. Any future incentives for mitigating climate-changing greenhouse gas emissions, such as carbon pricing, electric vehicles will require major changes in the region's energy sector.
 - **Impact on the construction sector:** Climate change is also resulting in important changes in the housing sector as increasing temperatures, particularly in summer months, are also increasing the demand for air conditioning. In the phase of expanding urbanization, with large numbers of new construction projects, it is tough to meet energy demands.

Measures to tackle energy challenge:



- **Increasing accessibility to clean energy:**
 - India has already committed to bring electricity to every household by 2022. An even more ambitious goal would be to provide electricity to all households on 24x7 basis.
 - To bring clean fuel in rural areas the Pradhan Mantri Ujjawala Yojana, should be complemented by: Setting up of biomass pelletising units; and distribution of 'efficient biomass chullahs'.
 - On the agricultural front, solar irrigation pump distribution target must be stepped up and financed through credit support from NABARD and government subsidy.
 - The potential non-conventional energy sources must be explored and researched to make them technologically economical and accessible, like geothermal energy, tidal energy etc.
- **Enhancing efficiency:**
 - The National Mission for Enhanced Energy Efficiency (NMEEE) should conduct a thorough cost-benefit analysis of the available energy-efficient technologies and products across all sectors, especially agriculture, housing and transportation.
 - At the institutional level, the national and state designated agencies working in the area of energy efficiency should be strengthened.
 - To enhance vehicle fuel efficiency gains, the auto fuel quality should be upgraded to BS VI norms for nation-wide launch in 2020.
- **INDIA ENERGY SECURITY SCENARIOS, 2047(IESS)**
 - It has been developed as an energy scenario building tool. The guiding ambition of this is to develop energy pathways leading up to the year 2047, comprising of likely energy demand and supply scenarios.
 - NITI Aayog launched the India Energy Security Scenarios 2047 calculator (IESS 2047), as an open source web based tool.
 - The tool aims to explore a range of potential future energy scenarios for India, for diverse energy demand and supply sectors leading up to 2047.
- **India's Energy diplomacy:**
 - India is setting up a web of energy relationships in the extended neighborhood covering Myanmar, Vietnam in the east, with Central Asian countries like Kazakhstan and Gulf countries in the west.
 - Indo-US Nuclear deal opened new vistas for India in field of Nuclear energy facilitating cutting edge technology and nuclear fuel. India has started to engage with China, Kazakhstan and Australia for nuclear fuel.
 - India's SCO membership could now play a bigger role in ensuring greater energy cooperation between energy producers and consumers by linking Central Asia and South Asia.
- **Promotion of Renewable Energy**



- A renewable energy capacity of 100 GW should be achieved by 2019-20 so as to contribute to achievement of 175 GW target by 2022.
- Solar Energy Corporation of India Limited (SECI) should develop storage solutions within next three years to help bring down prices through demand aggregation of both household and grid scale batteries.
- A large programme should be launched to tap at least 50% of the bio-gas potential in the country by supporting technology and credit support through NABARD by 2020.

Way forward:

- At the national/state level, it will be important for countries to shift to renewable energy sources in their energy mix in order to reduce demand competition for non-renewable sources such as fossil fuels.
- Governments should pay special attention to improving energy infrastructure management and improving planning to cope with the impacts of climate change.
- This will also require appropriate policies and regulatory frameworks that incentivise energy efficiency and behavioural change.
- Governments will need to encourage small businesses' activities in the energy sector, for example by enacting policies that support local-level development of renewable energy sources.
- Incorporating likely climate change effects into energy forecasts and planning will be critical for all countries and international institutions.
- Strengthening cooperation among the public sector, the private sector, and academia would be critical.

Conclusion:

Implementing the above measures and accounting for climate change impacts on the energy sector will continue to be challenging. This transition will take some time. There are various mitigation and adaptation measures that will have to start immediately. The longer the wait, the more pressing the challenges will become for the region, especially for the poorest who have the least ability to adapt.

Account for the impact of COVID-19 Pandemic on Sustainable Development Goals (SDGs). (250 words)

Reference: [The Hindu](#)

Why this question:

The question aims to examine the impact of the COVID-19 pandemic on the Sustainable Development Goals (SDGs) of the world.

Key demand of the question:

The question is straightforward and aims to examine the impact of the pandemic on the SDGs.

Directive:

Account – Weigh up to what extent something is true. Persuade the reader of your argument by citing relevant research but also remember to point out any flaws and counter-arguments as well. Conclude by stating clearly how far you are in agreement with the original proposition.

Structure of the answer:

Introduction:

Explain that besides having a devastating effect on Global Health, the COVID-19 pandemic has adversely affected almost all the SDGs.

Body:



To start with, explain briefly the SDGs and map the concerns posed by the pandemic that range from – health that has a significant place in the 2030 agenda (via SDGs) to education to climate change. Explain that in order to contain the pandemic, various countries have gone for lockdown affecting economic activity. Though everybody is feeling the pinch of a tottered economic activity, the people from lower socio-economic strata are finding it very hard and unaffordable. As the situation is today, hunger, unemployment and inequality stand exacerbated. Children and youth are getting deprived of quality education due to the closure of schools and colleges. The reports of domestic violence against women are on the rise. Suggest what needs to be done. Discuss the case of India.

Conclusion:

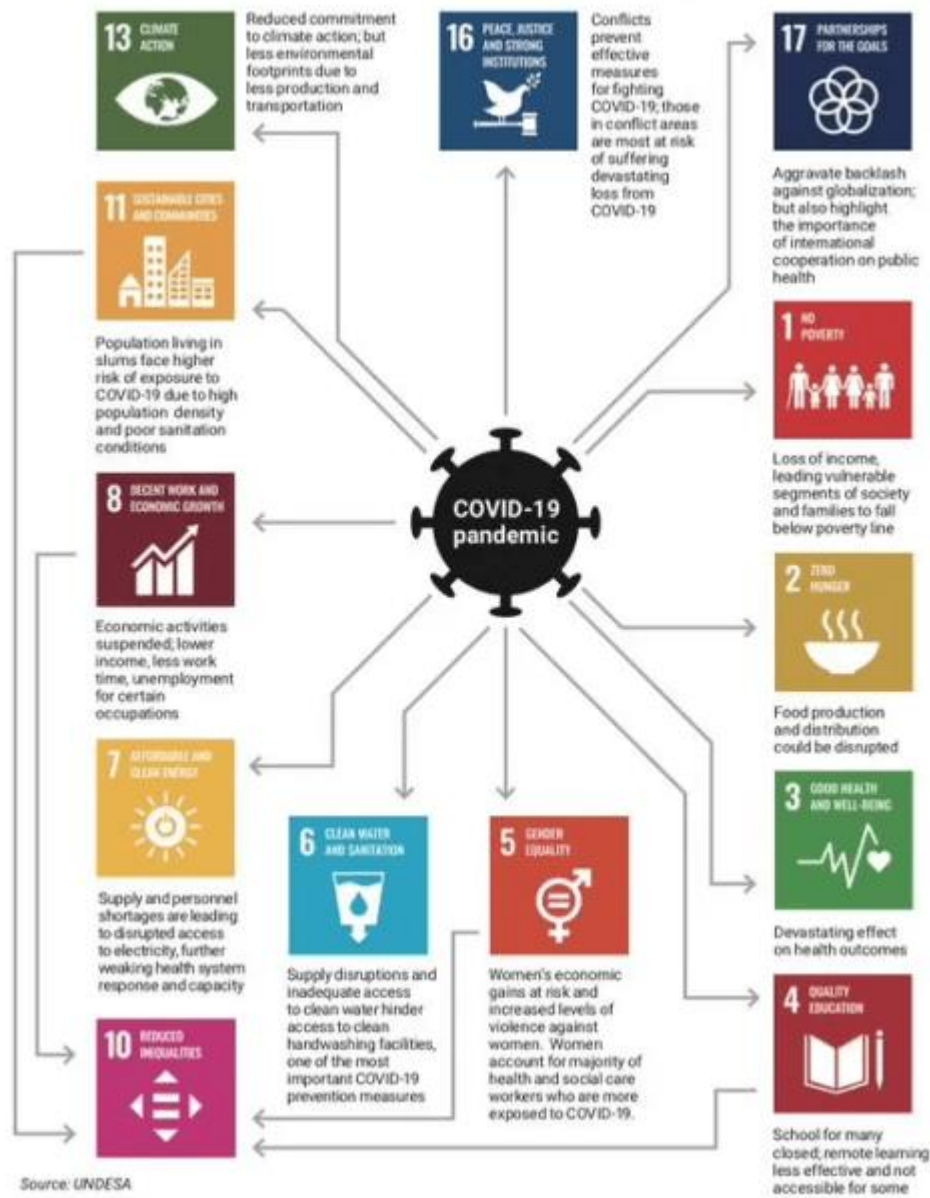
Conclude that to summarize, human health is inextricably linked to environment, ecosystems and biodiversity which in no case be allowed to get spoiled. It has become all the more imperative that in order to achieve SDGs, a population growth which is sustainable and which goes well with our environment, biodiversity and ecosystems be determined and defined.

Introduction

Amid the coronavirus pandemic, the SDGs are even more relevant today than ever before. The primary cost of the pandemic as seen in the loss of human lives is distressing, but the secondary effects on the global economy, on livelihoods and on sustainable development prospects are even more alarming. The International Monetary Fund estimates that our world has entered into a recession, the costs of the pandemic will be astronomical, with preliminary estimates placing it at a whopping US\$2 trillion.

Body

The coronavirus disaster undoubtedly infects the SDGs' Agenda 2030 at the very core. Hence the pandemic poses a major threat of delaying the whole process, which was already facing tremendous hardships in its implementation in the first place due to issues of scarce financial resources and political will, technological impediments and monitoring loopholes.



Impact of COVID-19 Pandemic on Sustainable Development Goals

- **Health:** Although in the present scenario, **SDG 3 (Good Health and Well-being)** acts as the linchpin that supersedes all the other development objectives across the world.
 - This pandemic has manifestly exposed the crisis in global health systems.
 - And while it is severely undermining prospects for achieving global health by 2030, critically it is having direct far-reaching effects on all the other SDGs.
- **Poverty:** Preliminary projections from the UN system indicate that COVID-19 could lead to the first increase in global extreme poverty in over 20 years, since the Asian financial crisis of 1981.
 - It could push 40 to 60 million people into extreme poverty and could double the incidence of food insecurity in the world.
 - In the worst scenario of a 20 percent economic decline, 419 million more people would be living in extreme poverty on less than \$1.90 a day.



- **Marginalization:** Quite inadvertently, marginal groups are more vulnerable than ever – **women, migrants, informal workers, refugees, indigenous tribes**, etc.
 - This in essence comes in direct **conflict** with the **SDGs' social-inclusivity sermon of "leaving no one behind"**.
- **Education:** UNESCO estimates that some **25 billion students** are affected by this pandemic, posing a serious challenge to the attainment of **Goal 4, Quality Education**.
- **Unemployment:** According to the **International Labour Organisation (ILO)** some **25 million people could lose their jobs** with those in informal employment suffering most from lack of social protection during this pandemic. Unfortunately, these might just be the tip of the iceberg.
- **Interlinkage:** Crucially, in many parts of the world, the pandemic and its effects are being exacerbated by the crisis in delivering on **clean water and sanitation targets (Goal 6)**, weak economic growth and the absence of decent work (Goal 8), pervasive inequalities (Goal 10), and above all, a crisis in poverty (Goal 1) and food security (Goal 2).
- The COVID-19 pandemic has temporarily **reduced pollution, emissions and exploitation of resources as a result of lockdown**. But this should not be a moment of reprieve. Rather, recovery efforts need to build a new reality, embedded in sustainability.
- Even at this stage in this deadly pandemic, we cannot deny the fact that the crisis is fast teaching us, as global citizens, the utmost value in being each other's keeper, in working to leave no one behind, and in prioritising the needs of the most vulnerable in society.

Build Back Better

- Priority must be given to placing vulnerable populations at the center of social policy reform packages in the short- and medium-term, including by establishing systems for **universal health care and universal social protection**.
- In the long-term, the note suggests that countries invest in **strengthening social protection and enhancing emergency preparedness** to minimize the impact of future health emergencies and enhance resilience of economies.
- Nations must start investing in **reducing the digital divide**, observing that digital communication has played a key role in enabling social distancing.
- The need of the hour is to bring together development agencies, national governments, civil society and the private sector in a global effort to protect the livelihoods and lives of the poorest of the poor in the Global South

Conclusion

Although the Covid-19 disaster will delay the timeline for the global goals, the SDGs have to stand the test of time to see how global partnerships in the future can make Agenda 2030 successful. While readjusting to the changing world orders after this pandemic, it is of utmost importance for nations to strive toward the SDGs with a renewed vigor, capitalizing on the fact that this huge challenge in the present is an immense learning opportunity for the entire human race in the future.

Account for the current water crisis in India and suggest what India can learn from other countries. (250 words)

Reference: thewaterproject.org

Why this question:



The question is straightforward and aims to assess the current water crisis in the country.

Key demand of the question:

Explain current water crisis in India and suggest what India can learn from other countries.

Directive:

Account – Weigh up to what extent something is true. Persuade the reader of your argument by citing relevant research but also remember to point out any flaws and counter-arguments as well. Conclude by stating clearly how far you are in agreement with the original proposition.

Structure of the answer:

Introduction:

Every year 2 lac Indians die due to inadequate access to safe water while 600 million face extreme water stress.

Body:

With the rise in climatic changes, this issue is likely to get complicated in the coming future. The monsoon rains have become more erratic and droughts becoming common thereby threatening harvest of farmers. It can cripple the livelihoods of an agricultural dominant country where 80% of water is used to irrigate crops like rice and sugarcane. The country's demand is likely to be twice of its supply, resulting in severe water scarcity of millions of people. Explain in detail the current situation. Give examples for efficient water management. Highlight recent steps taken by India. Suggest what lessons we can take from other countries.

Conclusion:

Conclude with way ahead.

Introduction:

The **NITI Aayog report on Composite Water Management Index (CWMI)** said that India is facing its 'worst' water crisis in history. Taps in Shimla went dry in summer of 2018, posing an unprecedented water crisis in the hill town. According to a forecast by the Asian Development Bank, India will have a water deficit of 50% by 2030. Recent studies also ranked Chennai and Delhi at the top of the 27 most vulnerable Asian cities in terms of low per-day water availability. Mumbai and Kolkata follow close.

Body:

India's water crisis is more serious than its energy crisis:

- The water crisis in India is more dire than imagined.
- The annual per capita availability of water continues to decline sharply from about 5,177 cubic metres in 1951 to about 1,720 cubic metres in 2019.
- The NITI Aayog in its report on Composite Water Management Index (2018) has underlined that currently 600 million people face high to extreme water stress.
- Twenty-one cities, including Delhi, Bengaluru, Chennai and Hyderabad will run out of groundwater by 2020, affecting 100 million people.
- Apart from mega cities, many fast-growing small and medium cities such as Jamshedpur, Kanpur, Dhanbad, Meerut, Faridabad, Visakhapatnam, Madurai and Hyderabad also figure in this list.
- The demand-supply gap in most of these cities ranges from 30 per cent to as much as 70 per cent.
- About two lakh die every year due to inadequate access to safe water, about three-fourths of the household do not get drinking water at their premise and about 70 per cent of water is contaminated.
- The rate of groundwater extraction is so severe that NASA's findings suggest that India's water table is declining alarmingly at a rate of about 0.3 metres per year.
- At this rate of depletion, India will have only 22 per cent of the present daily per capita water available in 2050, possibly forcing the country to import water.



- About 81 per cent of India's ultimate irrigation potential, estimated at 140 million hectares, has already been created and thus the scope for further expansion of irrigation infrastructure on a large scale is limited.
- Climate experts have predicted that there will be fewer rainy days in the future but in those days it would rain more.

Causative factors for water crisis:

- A combination of population explosion, unplanned growth of the city and its expansion to some traditional catchment areas (a region from which rainfall flows into a river, lake, or reservoir) have led to a reduction in the natural flow of water, and large-scale deforestation.
- Climate change, leading to much lower precipitation during the winter months. As a result, the natural flow and recharge of water in the region has fallen sharply
- Failure of State governments to check unplanned development and exploitation of water resources. There is no attempt at the central or state levels to manage water quantity and quality
- The vegetation pattern has changed, tree cover is shrinking and unscientific dumping of debris in water streams is rampant.
- The debris blocks the natural course of water bodies.
- Increasing number of tube wells resulting in depletion of groundwater.
- Changes in farming patterns lead to consumption of more water for irrigation and also change the soil profile because of the use of fertilizers
- The states ranked lowest like Uttar Pradesh, Haryana and Jharkhand – are home to almost half of India's population along with the majority of its agricultural produce.
- There is also a **lack of interest in maintaining India's traditional water harvesting structures.**

Measures needed:

- **Structural measures:**
 - Putting in place an efficient piped supply system (without leakage of pipes) has to be top on the agenda.
 - Ancient India had well-managed wells and canal systems. Indigenous water harvesting systems need to be revived and protected at the local level. Examples: Karez, Bawli, Vav etc
 - Digging of rainwater harvesting pits must be made mandatory for all types of buildings, both in urban and rural areas.
 - **Treating the Greywater and reusing it** needs to be adopted by countries like Israel (upto 85%). It could be used to recharge depleted aquifers and use on crops.
 - Initiatives such as **community water storage and decentralized treatment facilities, including elevated water towers or reservoirs and water ATMs**, based on a realistic understanding of the costs involved, can help support the city's water distribution.
 - Technologies capable of converting non-drinkable water into fresh, consumable water, offering a potential solution to the impending water crisis are needed.
Example: **Desalination technologies in Coastal areas, Water-sterilization in polluted water areas.**
- **Non-structural measures:**



- The **World Bank's Water Scarce Cities Initiative** seeks to promote an integrated approach, aims at managing water resources and service delivery in water-scarce cities as the basis for building climate change resilience.
- Groundwater extraction patterns need to be better understood through robust data collection
- Decentralisation of irrigation commands, offering higher financial flows to well-performing States through a **National Irrigation Management Fund**.
- **Public awareness campaigns, tax incentives for water conservation and the use of technology interfaces** can also go a long way in addressing the water problem. **Example**, measures such as water credits can be introduced with tax benefits as incentives for efficient use and recycling of water.
- A collaborative approach like the adoption of a public-private partnership model for water projects can help. **Example**, in Netherlands, water companies are incorporated as private companies, with the local and national governments being majority shareholders.
- Sustained measures should be taken to prevent pollution of water bodies and contamination of groundwater.
- Ensuring proper treatment of domestic and industrial waste water is also essential.

Way forward:

- India's water problems can be solved with existing knowledge, technology and available funds.
- NITI Aayog has prescribed only a continuation of past failed policies.
- India's water establishment needs to admit that the strategy pursued so far has not worked.
- Only then can a realistic vision emerge.

Conclusion:

Primarily water is not valued in India. "People think it is free". In order to meet the future urban water challenges, there needs to be a shift in the way we manage urban water systems.

An **Integrated Urban Water Management approach** must be adopted which involves managing freshwater, wastewater, and storm water, using an urban area as the unit of management.

Discuss the Objectives of Environmental Impact Assessment and bring out its procedure.(250 words)

Reference: Environment by Shankar IAS

Why this question:

The question is straightforward from the static portions of GS paper III.

Key demand of the question:

Explain what EIA is, what its objectives are and bring out its procedure in detail.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:



Environmental Impact Assessment (EIA) is a process of evaluating the likely environmental impacts of a proposed project or development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse.

Body:

To start with, explain the history of EIA in India. The Indian experience with Environmental Impact Assessment began over 20 years back. It started in 1976-77 when the Planning Commission asked the Department of Science and Technology to examine the river-valley projects from an environmental angle. Then move onto discuss the objectives of EIA in detail. Highlight the procedure involved step by step and assert upon its significance.

Conclusion:

Conclude with its importance.

Introduction:

Environmental Impact Assessment (EIA) is an important management tool for ensuring optimal use of natural resources for sustainable development. It covers developmental sectors such as industries, thermal power projects, mining schemes etc. EIA has now been made mandatory under the Environmental (Protection) Act, 1986 for 29 categories of developmental activities involving investments of Rs. 50 crores and above.

Body:

Recent amendments to EIA:

- All projects or activities in respect of bulk drugs and intermediates, manufactured for addressing various ailments, have been re-categorized from the existing Category 'A' to 'B2' category.
- Projects falling under Category B2 are exempted from the requirement of collection of Baseline data, EIA Studies and public consultation.
- The re-categorization of such proposals has been done to facilitate decentralization of appraisal to State Level so as to fast track the process.

The objective of the EIA:

- To identify, predict and evaluate the economic, environmental and social impact of development activities.
- To provide information on the environmental consequences for decision making.
- To promote environmentally sound and sustainable development through the identification of appropriate alternatives and mitigation measures.
- To identify and quantify emission sources and determine the significance of impacts on sensitive receivers and potential affected uses.
- To identify and quantify any potential losses or damage to flora, fauna and natural habitats.

Procedure of EIA: EIA involves the steps mentioned below. However, the EIA process is cyclical with interaction between the various steps.

- **Screening:** The project plan is screened for scale of investment, location and type of development and if the project needs statutory clearance.
- **Scoping:** The project's potential impacts, zone of impacts, mitigation possibilities and need for monitoring.
- **Collection of baseline data:** Baseline data is the environmental status of study area.
- **Impact prediction:** Positive and negative, reversible and irreversible and temporary and permanent impacts need to be predicted which presupposes a good understanding of the project by the assessment agency.



- **Mitigation measures and EIA report:** The EIA report should include the actions and steps for preventing, minimizing or by passing the impacts or else the level of compensation for probable environmental damage or loss.
- **Public hearing:** On completion of the EIA report, public and environmental groups living close to project site may be informed and consulted.
- **Decision making:** Impact Assessment Authority along with the experts consult the project-in-charge along with consultant to take the final decision, keeping in mind EIA and EMP (Environment Management Plan).
- **Monitoring and implementation of environmental management plan:** The various phases of implementation of the project are monitored.
- **Assessment of Alternatives, Delineation of Mitigation Measures and Environmental Impact Assessment Report:** For every project, possible alternatives should be identified, and environmental attributes compared. Alternatives should cover both project location and process technologies.
 - Once alternatives have been reviewed, a mitigation plan should be drawn up for the selected option and is supplemented with an Environmental Management Plan (EMP) to guide the proponent towards environmental improvements.
- **Risk assessment:** Inventory analysis and hazard probability and index also form part of EIA procedures.

Way Forward:

- Independent EIA Authority and Sector wide EIAs needed.
- Creation of a centralized baseline data bank.
- Dissemination of all information related to projects from notification to clearance to local communities and general public.
- All those projects where there is likely to be a significant alternation of ecosystems need to go through the process of environmental clearance, without exception.
- No industrial developmental activity should be permitted in ecologically sensitive areas.
- Public hearings should be applicable to all hitherto exempt categories of projects which have environmental impacts.
- The focus of EIA needs to shift from utilization and exploitation of natural resources to conservation of natural resources.
- The present executive committees should be replaced by expert's people from various stakeholder groups, who are reputed in environmental and other relevant fields.
- The EIA notification needs to build within it an automatic withdrawal of clearance if the conditions of clearance are being violated and introduce more stringent punishment for noncompliance. At present the EIA notification limits itself to the stage when environmental clearance is granted.
- The composition of the NGT needs to be changed to include more judicial authorities from the field of environment.
- Citizen should be able to access the authority for redressal of all violation of the EIA notification as well as issues relating to non-compliance.
- NGOs, civil society groups and local communities need to build their capacities to use the EIA notification towards better decision making on projects.

Conclusion:



An EIA should not be used just as a means for obtaining an environmental clearance; rather, project proponents should use it as a management tool to assess the soundness of a project plan. The focus of EIA needs to shift from utilization and exploitation of natural resources to conservation of natural resources.

Though India's overall contribution to global climate change is meager, yet it is one of the major countries affected by climate change. In this backdrop, critically analyse major initiatives undertaken by the government for combating climate change?(250 words)

Reference: climate.nasa.gov

Why this question:

The question is based on the current conditions of global climate change.

Key demand of the question:

One has to critically analyse major initiatives undertaken by the government for combating climate change.

Directive:

Critically analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgment.

Structure of the answer:

Introduction:

Briefly give statistics supporting how India's overall contribution to global climate change is small.

Body:

To start with, List down major initiatives of Indian government for climate action. For example- NDCs at Paris Agreement, NAPCC, ISA etc. The question also asks to critically examine them, thus students must essentially examine whether India is on the right track of fulfilling its climate targets.

Conclusion:

Conclude by discussing how the current global efforts are inadequate (recall the UNEP Emissions Gap Report) and all countries, especially developed ones, need to ramp up efforts based on the principle of CBDR.

Introduction

India's per capita carbon emissions remain low at only **40% of the global average**, according to a new report by the Paris-based International Energy Agency. Even in absolute terms, the rise in India's CO₂ emissions trails that of the US and China.

Though India is a developing country and has not been historically contributing to climate change, it has pledged a considerable resource to fight climate change.

Body

Impact of Climate Change on India

- **Coastal areas:** 7500 km long coastline is already vulnerable to various **disasters like cyclone, coastal flooding, storm surges, heavy rainfall** (as seen in Mumbai) etc.
 - The rise in the sea temperature and level will only increase the frequency of such hazards endangering the life and livelihood of the coastal population.
 - Also, India being close to the equator will experience much higher increase in sea level than higher latitudes



- **Monsoon:** Phenomenon such as **El Nino will increase the variability** of the monsoon worsening the **agricultural crisis** with more than **50% area still being rain-fed** and threatening the food security.
 - Climate change has about 4-9 per cent impact on agriculture each year.
 - As agriculture contributes 15 per cent to India's GDP, climate change presumably causes about 1.5 per cent loss in GDP(1).
- **Disasters:** More weather aberrations as recently seen in Mumbai and Chennai and increase incidence of the disasters like **flood and drought** will threaten both rural and urban economy
- **Biodiversity:** Loss of biodiversity put the livelihood of the forest dependent and hill communities at risk and disturb the biogeochemical cycles that help maintain the flow of nutrient, water and pure air.
 - Increase in human-wildlife conflict as observed in State like Chhattisgarh and Jharkhand is another threat.
- **Health:** Increased disease outbreaks especially of the **tropical diseases like Malaria and Dengue**, heat waves aggravating the **urban heat island effect** and **water scarcity** compelling people to consume polluted water will increase the burden of mortality and morbidity.
- **Migration:** Rising inequalities as poor will be most affected due to climate change will increase the burden of migration and cripple the urban economies.
 - Illegal migration from the neighbor countries will also cause security threats.

Measure taken to combat climate change in India

- **India's Nationally Determined Contributions**
 - Reduce the emissions intensity of its GDP by 33 to 35 per cent by 2030 from 2005 level
 - 40% of cumulative electric power installed capacity from non-fossil fuel sources by 2030 with financial and technical help from other countries and GCF
 - Additional carbon sink of 2.5 to 3 billion tons of CO2 equivalent by 2030
 - Enhancing investments in development programs in sectors vulnerable to climate change, particularly agriculture, water resources etc.
 - Joint collaborative R&D for such future technologies
- **National Action Plan on Climate Change (NAPCC):** The Action plan covers eight major missions on Solar, Enhanced Energy Efficiency, Sustainable Habitat, Water, Sustaining the Himalayan Ecosystem, Green India, Sustainable Agriculture and Strategic Knowledge on Climate Change.
- **International Solar Alliance (ISA):** ISA was jointly launched by the Prime Minister Narendra Modi, and the then President of France, Francois Hollande in Paris on the side-lines of CoP



21 in 2015. The vision and mission of the alliance is to provide a dedicated platform for cooperation among solar resource rich countries that lie completely or partial between the Tropics of Capricorn & Cancer.

- **State Action Plan on Climate Change (SAPCC):** State governments have drafted climate strategies aligned with the eight National Missions under the NAPCC. The strategies focus on issues ranging from climate mitigation, energy efficiency, and resource conservation to climate adaptation.
- **FAME Scheme for E-mobility:** Union Government in April 2015 launched Faster Adoption and Manufacturing of Hybrid and Electric vehicles (FAME) – India Scheme with an aim to boost sales of eco-friendly vehicles in the country. It is a part of the National Mission for Electric Mobility.
- **Atal Mission for Rejuvenation & Urban Transformation (AMRUT) for Smart Cities :** To make cities sustainable and increasing the green spaces in cities.
- **Environment Impact Assessment:** Management tool to regulate the impact of industries on the environment for ensuring optimal use of natural resources for sustainable development.
 - Applicable for major projects like infrastructure, thermal and nuclear power, industries, mining etc.
 - Industrial categorization (Red, Orange, Green and White) according to their impact to maintain balance between regulation and ease of doing business.
 - White industries do not require EIA approval
- **Pradhan Mantri Ujjwala Yojana:** The scheme provides LPG connections to five crore below-poverty-line beneficiaries. The connections are given in the name of women beneficiaries to reduce their dependence on fossil fuels and conventional fuel like cow dung for cooking food, thus reducing air pollution.
- **UJALA scheme:** The scheme was launched by the Prime Minister Narendra Modi in January 2015 with a target of replacing 77 crore incandescent lamps with LED bulbs. The usage of LED bulbs will not only result in reducing electricity bills but also help in environment protection.
- **Energy Conservation Building Code (ECBC), 2017:** Developed by Power Ministry and BEE, ECBC seeks to promote low carbon growth by integrating the renewable energy sources in the design of the buildings.
 - For a building to be ECBC compliant it has to show at least 25% savings in the energy consumption.
 - It is estimated that adoption of ECBC throughout the country would reduce at least 50% of the energy use by 2030.

Way forward

As pointed out earlier the INDCs submitted by the countries under Paris agreement are grossly inadequate to contain the temperature rise within the desirable limit. In India, rising threats of climate change aggravated by increasing inequality requires a proactive policy that factors in the unique threats to different regions (e.g. floods in the Ganga basing and drought in Vidarbha region)



in the development programs. Following measure are needed in addition to the above mentioned initiatives:

- Addressing the distortion in the cropping towards water intensive crops like rice and promoting agro-climatic farming.
- Increased community engagement in the adaptation measures such as in the Jal Swavlamban Yojana of Rajasthan wherein people are provided incentives to create water storage structures.
- Expansion in the community forestry and Joint forest management to contain the loss to green cover due to industrial activity.
- Decentralized water management through revival of traditional mechanisms like baolis and adoption of eco-friendly methods like 'four water concept' to address the water shortage. Preventing the exploitation of ground water resources.
- Investing in R&D for developing crop varieties more suited to changed climatic conditions (e.g. drought resistant) and diversification of rural economy to reduce pressure on land for agriculture.
- Investments in the agricultural value chain to reduce post-harvest losses and increase the income of farmers.
- Development of better forecasting model and climate change atlas that highlights the challenges for different regions for evidence—based policymaking.
- Increased international collaboration for finances and technology with an outcome based approach.
- Strict enforcement of building code and expansion of rooftop solar power program to reduce dependence on the coal energy.
- Better urban planning focusing on solid waste management and public transport.

Locust invasion can inflict destruction on the lives of thousands of farmers in the country. Discuss the essential measures to combat the pest attack to avert losses. (250 words)

Reference: [The Hindu](#)

Why this question:

The threat of locusts, which have invaded vast swathes of land in Rajasthan and entered neighboring Madhya Pradesh, is bigger this year in comparison with the damage caused to standing crops in a limited area in 2019. Thus the question.

Key demand of the question:

Discuss the issue of Locust invasion and suggest measures to be taken to address the possible losses that they may cause to the agrarian system in the country.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:



One can start with facts such as – The tropical grasshoppers have been crossing over to India via Pakistan's Sindh province since April 2020.

Body:

In short talk about the locust storms in general, their onset every year and why it is different this year. Discuss what have been the challenges due to it this year, what it means to farmers and agriculture and food system vis-à-vis security of the country. Suggest what needs to be done to overcome the situation.

Conclusion:

Conclude with way ahead.

Introduction

Indian authorities are helping farmers mount a pesticide spraying campaign to fight the swarms of desert locusts which have already devastated crops across Pakistan and East Africa. About 42,000 hectares (104,000 acres) of cotton, summer pulses and vegetable crops have been affected by locusts across six states, mainly in Rajasthan, said Mohapatra.

Body

Background: About Locust

- The **desert locust (*Schistocerca gregaria*)** is a short-horned grasshopper.
- Harmless when solitary, locusts undergo a behavioural change when their population builds up rapidly.
- They enter the 'gregarious phase' by forming huge swarms that can travel up to 150 km per day, eating up every bit of greenery on their way.
- These insects feed on a large variety of crops. If not controlled, locust swarms can threaten the food security of a country.
- **Reason for Early Arrival:** This can be traced back to the **cyclonic storms Mekunu and Luban** that had struck Oman and Yemen respectively in 2018.
 - These turned large deserts tracts into lakes, facilitating locust breeding that continued through 2019.
 - Swarms attacking crops in East Africa reached peak populations from November, 2019.
 - They built up in southern Iran and Pakistan since the beginning of 2020, with heavy rains in East Africa in March-April enabling further breeding.
- **Institution Responsible:** As a result of the 1926-1931/1932 locust plague, India, under the British Raj at the time, began research into the desert locust, beginning in 1931.
 - It then led to the establishment, in 1939, of a permanent **Locust Warning Organization (LWO)**, with a station in Karachi (undivided India).
 - Its main job was to keep an eye for a specific sub-species of the insect, the desert locust, that sprang into the region from the Thar desert.

Impact of Locus invasion

- **Crop Damage:**



- At present, chances of crop damage are low given that farmers have already harvested their rabi crop.
- Orange growers in Maharashtra have expressed concern but as per scientists of the Agriculture Ministry's Locust Warning Organization (LWO), the swarm in Maharashtra would be easy to control.
- **Burgeoning Population and swarms:**
 - The bigger problem will come once the **present swarms breed**. An adult female locust lays 80-90 eggs thrice in her three-month life cycle.
 - If left uncontrolled, a swarm can grow exponentially to 40-80 million locusts per square kilometre.
- **Destruction of plant growth:**
 - Locusts **attack all sorts of vegetations, including farms, wiping everything** out in their wake
 -
 - Locusts devour leaves, flowers, fruits, seeds, bark and growing points, and also destroy plants by their sheer weight as they descend on them in massive numbers.
 - A small swarm of the desert locust eats on an average as much food in one day as about 10 elephants, 25 camels, or 2,500 people.
- **Past experience:** During the 1940-46 and 1949-55 locust plague cycles, the damage was estimated at Rs 2 crore per cycle, and at Rs 50 lakh during the last locust plague cycle (1959-62).
- **Locust Breeding and Kharif crop:**
 - The locusts will **start laying eggs after the monsoon** starts and continue breeding for two more months, with newer generations rising **during the growth phase of the kharif crop**.
- **Food Security in Peril:** Reports of crop damages have been pouring in from states as farmers try and get rid of locusts by smoking them out, scaring them away by making loud noises or spraying chemicals.
- If locust attacks of this proportion continue unabated, the insects will **wipe out lakhs of tones of food grains and vegetables meant for human consumption**.

Measures to combat Locust Infestation

- A locust attack has to be dealt with by spraying pest control and plant protection chemicals.
- According to the FAO's locust situation bulletin of May 27, adult locusts were forming groups and small swarms in spring breeding areas in Baluchistan, Indus Valley (Pakistan) and southern coast and parts of Sistan-Baluchistan.
- In India, existing groups of swarms have continued to move east and to the central States of Madhya Pradesh and Maharashtra.
- Much of these movements were associated with the strong westerly winds of Cyclone Amphan.



- Several successive waves of invasions are likely until July in Rajasthan, with eastward surges across northern India as far as Bihar and Odisha followed by westward movements and a return to Rajasthan on the changing winds associated with the monsoon.
- These movements will cease as swarms begin to become less mobile. The swarms are less likely to reach Nepal, and Bangladesh and south India, according to experts.

Conclusion

Experience shows that a locust plague usually follows a one to two year cycle after which there is a lull for eight to nine years. However, strong Indian Ocean Dipoles are expected to become more frequent whetted by an overall trend of warming oceans. This phenomenon could trigger regular locust infestations.

Disaster and disaster management.

Is the Disaster Management Act, 2005, ill-suited to be the main economic law of the country? Analyse the need for a pandemic law in the current situation facing the world.(250 words)

Reference: [Business Standard](#)

Why this question:

The author of the article discusses the lacunae in the DMA 2005 from the economic perspectives. And he highlights the need of a Pandemic Act in future.

Key demand of the question:

Explain the need for a pandemic law in the coming future, analyse the gaps in the Disaster management act 2005.

Directive:

Analyze – When asked to analyse, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer:

Introduction:

Present brief description of the current situation.

Body:

To start with explain the role of disaster management act, 2005 in the current pandemic situation. Discuss why the economic perspectives are missing in the DMA 2005. Explain the need for pandemic law in the coming future.

Conclusion:

Conclude with what should be the way forward.

Introduction:

The Disaster Management Act, 2005 was enacted to provide an institutional mechanism for drawing up prevention, preparedness and response strategies along with holistic implementation of these measures. National Policy on Disaster Management 2009 further elaborated on its mandate while the National Disaster Management Authority, National institute of Disaster management and a National Disaster Response Force were constituted under the Act.

The Disaster Management Act, 2005 is a poor vehicle for the conduct of economic policy on a nationwide scale. With the Disaster Management Act as the main economic law in motion today, firms will be risk averse out of the threat of incarceration.

Body:

**Role of disaster management act, 2005 in the current pandemic situation:**

- COVID-19 is the first pan India biological disaster being handled by the legal and constitutional institutions of the country.
- To address the current epidemic outbreak, the Central government has included the Covid-19 outbreak as “Notified Disaster” as a “critical medical condition or pandemic situation” .
- Though the Constitution of India is silent on the subject ‘disaster’, the legal basis of the DM Act, is Entry 23, Concurrent List of the Constitution “Social security and social insurance”.
- Entry 29, Concurrent List “Prevention of the extension from one State to another of infectious or contagious diseases or pests affecting men, animals or plants,” can also be used for specific law making.
- As the Indian economy had started out in early 2020 in reasonably poor shape, there was a lot of concern about this combination, of extreme measures impacting upon a weak economy.
- While the much needed restoration of normalcy began on April 18 and has gone forward on May 1, the problem of Covid-19 is not an earthquake or a flood; it is not localized and it will not end quickly.

Economic perspectives are missing in the DMA 2005:

- The use of coercive power of the state has major consequences for the market economy.
- Economic policy works well when the liabilities for violating rules are of a civil nature. All economic actions are conducted in the pursuit of financial gain, and the threat of a fine which is three times the ill-gotten gain suffices in removing the incentive to violate the law.
- But the Disaster Management Act imposes criminal liabilities. This will create a strange dynamic between officials’ vs people.
- Economic policy works well when there is the slow, intellectual, consultative process of understanding problems, undertaking cost benefit analysis, finding the least coercive intervention, and making small moves.
- Such institutionalized application of mind is born of provisions in laws that establish formal processes for wielding coercive power.
- The Disaster Management Act, 2005, does not have these checks and balances, as it was never intended to be a key economic law.
- There are a thousand questions about every element of coercion that need to be clarified through explicit drafting of law, through subordinate legislation and through jurisprudence. That process has not taken place around the Disaster Management Act.
- As a consequence, there are numerous grey areas about what can be done and what cannot be done. There is considerable discretion with millions of officials, all across the country, in deciding who to permit and who to ban.

Way forward:

- India is comparable to the European Union in size and heterogeneity; it makes sense to have highly differentiated approaches that reflect local conditions.
- Rather than a single policy framework for the whole country, we have gone to an approach that respects three different kinds of districts.
- There is great value in local information, local problem solving, and local control of the social distancing restrictions.
- Policymakers need to recognize the complexities associated with major economic policy actions that are implemented at the level of the union government through the Disaster Management Act, and find solutions for these problems.



- While the response of the public health system has been admirable, once the outbreak is contained, Parliament must take immediate steps to review the disaster management laws to create a comprehensive legal regime and appropriate protocols to effectively tackle any future public health crisis.

The recent Vizag chemical leak incident is a wake-up call to ensure industrial safety in the country. Discuss. (250 words)

Reference: [Hindustan Times](#)

Introduction:

The gas leak from a chemical factory in Vizag, which killed 12 people, is the most serious of three industrial accidents that have taken place since the national lockdown was eased on May 3. The other two were in Tamil Nadu and Chhattisgarh. Though the numbers are far smaller, the tragedy brings back memories of the Bhopal gas leak, the worst industrial disaster in the world, which killed at least 3,800 people. The Vizag plant leak was styrene, a benzene derivative used to manufacture plastics and resin.

India's industrial safety record has been patchy at the best of times. Now in the aftermath of the lockdown, it is likely to get further eroded.

Body:

Need for Industrial safety in India:

- What happened in Vizag should be considered a warning for other industries which are resuming operations after a lengthy lockdown. India's industrial safety record has been patchy at the best of times.
- Thirty-six years after the Bhopal disaster, it is distressing to see accidents from hazardous industries.
- The fields of occupational and environmental medicine, toxicology, and epidemiology which study and prevent industrial accidents have still not been developed adequately to cater for the amount of industrial development that has occurred in India.
- Reports suggest that the Vizag plant has functioned without proper environmental clearances for a substantial period since it was set up.
- It must also be asked how the South Korean petrochemical giant, which owns LG polymers, the site of the accident, did not ensure that qualified people were in place to check systems and open the plant.
- A majority of accidents that occur in refineries are the result of human error. Often times a worker fails to follow the safety procedures that have been put into place by the company.
- The common reasons for accidents in chemical plants occur is from improper maintenance of equipment. A piece of equipment can ultimately fail and malfunction if it is not properly maintained. This can be very hazardous for the workers who are operating and working around the machine.
- Every year 48000 fatal accidents occur in India. Only 20% working population was covered under any occupational safety regulation.
- For instance, fire crackers Factory at Batle Punjab claimed 23 lives this year; Sivakashi factory explosion – 2012, 40 died and 70 injured.

Measures needed to strengthen the Industrial safety in India:



- Industries must comply with regulations, and the government must ensure that they are strictly enforced.
- Regular maintenance at scheduled intervals and the manufacturer's recommendations is important to ensure that the equipment runs smoothly and safely.
- Employees should be properly taught on how to operate the equipment in the way it was designed to be used. They should also learn to employ safety procedures when they are operating a piece of equipment.
- Also, employees should be well versed in what to do if something goes wrong so that they can fix it before it gets out of control.

Way forward:

- **The Occupational Safety, Health and Working Conditions Code, 2019**, which unfortunately, successive governments have not felt it necessary to ratify should be taken up and put into place immediately.
- With the ultimate aim of extending the safety and healthy working conditions to all workforce of the country, the Code enhances the ambit of provisions of safety, health, welfare and working conditions from existing about 9 major sectors to all establishments having 10 or more employees.
- It is evident that the Occupational Safety, Health and Working Conditions has some unique new initiatives for both workers and employers.
- It promotes health, safety, welfare and better working conditions of workforce by enhancing the ambit of a dynamic legislation as compared to the existing sectoral approach limited to few sectors.
- Besides, it also drastically rationalizes the compliance mechanism with one license, one registration and one return for the establishments under the ambit of the Code thereby saving resources and efforts of the employers.
- Thus, there is a need to balance the requirements of worker and employer and is beneficial to both the constituents of the world of work.

The complexities in any disaster are associated with social, cultural, economic and political forces; in this context do you think the disaster risk management must thus look beyond the conventional phases of disaster risk management? Examine.(250 words)

Reference: [geography and you](https://www.geographyandyou.com/un-spider.org) , [un-spider.org](https://www.un-spider.org)

Why this question:

The question is based on the theme of disaster risk management.

Key demand of the question:

Explain the complexities associated with any disaster, bring out that the association is not always just about vulnerability or risk associated with a hazard but is also with social, cultural, economic and political forces and thus there is need to thus look beyond the conventional phases of disaster risk management.

Directive:

Examine – When asked to 'Examine', we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Briefly explain what constitutes a disaster.

**Body:**

To start with, explain how the disasters are associated with social, cultural, economic and political forces. One can provide for examples to substantiate better. Explain how disasters are not linear and that they may overlap and occur simultaneously. Highlight the need to consider the fact of moving beyond the conventional definition and recognize these factors in reducing the risks associated with disasters.

Conclusion:

Conclude with importance and suggest way forward.

Introduction:

Disaster is a catastrophic situation in which normal pattern of life and or ecosystem has been disrupted and extraordinary emergency interventions are required to save and preserve lives and or environment. Disaster preparedness means the steps or activities and precautions taken collectively before a disaster to reduce the impact and to cope with it effectively.

Disaster Risk Management is the application of disaster risk reduction policies and strategies, to prevent new disaster risks, reduce existing disaster risks, and manage residual risks, contributing to the strengthening of resilience and reduction of losses. Disaster risk management actions can be categorized into; prospective disaster risk management, corrective disaster risk management and compensatory disaster risk management.

Body:

The **Disaster management cycle** illustrates the ongoing process by which governments, businesses, and civil society plan for and reduce the impact of disasters, react during and immediately following a disaster, and take steps to recover after a disaster has occurred. Appropriate actions at all points in the cycle lead to greater preparedness, better warnings, reduced vulnerability or the prevention of disasters during the next iteration of the cycle. The **complete disaster management cycle includes the shaping of public policies and plans that either modify the causes of disasters or mitigate their effects on people, property, and infrastructure.**

However, the characteristics determined by physical, social, economic and environmental factors or processes increases the susceptibility of an individual, a community, assets or systems to the impacts of hazards. Vulnerability relates to a number of factors, including:

- **Physical factors:** g. poor design and construction of buildings, unregulated land use planning, etc.
- **Social factors:** g. poverty and inequality, marginalisation, social exclusion and discrimination by gender, social status, disability and age (amongst other factors) psychological factors, etc.
- **Economic factors:** g. the uninsured informal sector, vulnerable rural livelihoods, dependence on single industries, globalization of business and supply chains, etc.
- **Environmental factors:** g. poor environmental management, overconsumption of natural resources, decline of risk regulating ecosystem services, climate change, etc.

In addition, **vulnerability is determined by historical, political, cultural and institutional and natural resource processes that shape the social and environmental conditions** people find themselves existing within. These processes produce a range of immediate unsafe conditions such as living in dangerous locations or in poor housing, ill-health, political tensions or a lack of local institutions or preparedness measures.

Vulnerability changes over time because many of the processes that influence vulnerability are dynamic, including rapid urbanisation, environmental degradation, market conditions and



demographic change. Many of these factors are rooted in changing local conditions, but the picture is incomplete without acknowledging the national and global socio-economic and political structures that constrain local development opportunities.

Measures undertaken:

- For each hazard, the approach used in this national plan incorporates the four priorities given in the **Sendai Framework** into the planning framework for Disaster Risk Reduction under the five Thematic Areas for Actions: **Understanding Risk; Inter-Agency Coordination; Investing in DRR – Structural Measures; Investing in DRR – Non-Structural Measures; Capacity Development**
- The **United Nations Office for Disaster Risk Reduction (UNISDR)** was established to ensure the implementation of the International Strategy for Disaster Reduction.
- UNISDR supports the **implementation, follow-up and review of the Sendai Framework for Disaster Risk Reduction** adopted by the Third UN World Conference on Disaster Risk Reduction on 18 March 2015 in Sendai, Japan.
- Such international cooperation and shared commitment are needed to “future-proof” our cities and lock-in resilience for generations to come.
- In India, the **national disaster management plan (NDMP)** was introduced by NDMA based on the Sendai Framework for Disaster Risk Reduction 2015-2030.

Way forward:

- Rather than focusing only on what limits people's ability to reduce their risk, the policy objective of disaster risk reduction (DRR) instead emphasizes understanding people's capacity to resist and recover from disasters, as well as enhancing the overall resilience of people, society and systems.
- The local and traditional knowledge vulnerable communities possess to respond to disasters should form the basis of outside interventions to reduce disaster risk.
- Developing sustainable DRR capacities at national and local level requires that capacity locally generated, owned and sustained whilst also being the concern of society, rather than any single agency.
- Capacity development requires not only building technical capacities (such as environmental management) but also the promotion of leadership and other managerial and functional capacities.
- Finally, capacity development requires an enabling environment i.e. strong political ownership and commitment at the highest level.

The quadruple whammy of Covid-19, the lockdown, migrants' resettlement and the cyclone in the West Bengal underlines the need to relook at the Disaster Management cycle in the country, Examine.(250 words)

Reference: *Hindustan Times*

Why this question:

The question is based on the current situation of super cyclone that has hit the State of West Bengal badly amidst the already existing issues of Covid situation, lockdown and the bigger migration issue.

Key demand of the question:

Explain the need to relook at the Disaster management methods in the country.

Directive:



Examine – When asked to ‘Examine’, we must look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.

Structure of the answer:

Introduction:

Briefly explain the current crisis situation.

Body:

To start with, one can present the case study of West Bengal, state key facts depicting the quadruple whammy of Covid-19, the lockdown, migrants’ resettlement and the cyclone. From the article take hints and explain the five points that the author presents which need immediate attention in the country with respect to disaster management.

Conclusion:

Conclude with way forward.

Introduction:

The eastern Indian city of Kolkata has been devastated by a powerful cyclone which has killed at least 84 people across India and Bangladesh. Super cyclone Amphan made landfall on last Wednesday, lashing coastal areas with ferocious wind and rain. Thousands of trees were uprooted in the gales, electricity and telephone lines brought down and houses flattened. To add to the woes of cyclone after-effects, there are increasing cases of Covid-19, continued lockdown in some areas and the resettlement of scores of migrants who are returning back to West Bengal. India, thus, needs a focused approach to cyclical natural disasters

Body:

Disaster wreaked by Cyclone Amphan:

- In less than two days, Bengal lost around Rs 1 lakh crore.
- The cyclone left 80 dead, hundreds of thousands homeless, uprooted trees, ravaged houses, marooned dwellings, knocked out electricity and phone lines, flooded cities and villages, plundered embankments, fencings and boundaries.
- It wreaked ecological destruction and devastation, especially in the eco-sensitive Sundarbans.
- Not least was the ruination of Kolkata’s iconic Great Banyan Tree, among the world’s largest.
- Prime Minister announced a relief package of Rs 1,000 crore (\$132 million) for WB and Rs 500 crore (\$66 million) for Odisha.

The complete disaster management cycle includes the shaping of public policies and plans that either modify the causes of disasters or mitigate their effects on people, property, and infrastructure.

Measures needed:

- There is a need for a genuinely non-discriminatory and equal approach qua all states.
- There is a need for many international agencies to come up with financial assistance like they did during the Gujarat earthquake including the European Union, United States (US) Agency for International Development, Canadian International Development Agency and World Bank (\$300 m) and Asian Development Bank (\$500 m).
- there is a need to exponentially increase government allocation to fight natural disasters.
- random allocation is far less useful than targeted and focused relief measures.
- planned and targeted measures need to be coupled with a robust institutional framework.
- All municipalities must draft their reconstruction plans based on modelling and the plans were based entirely on urban planning, land management, structural mitigation and relocation.



- Such innovations need to be conceptualized in India, much less implemented and even medium-term thinking, much less long-term planning, is conspicuously overwhelmed by short-term ad hocism
- Many countries in their disaster-prone coastal regions have constructed high seawalls to protect vulnerable communities. Odisha's cyclone shelters are a praiseworthy-but-partial achievement, deserving emulation.

Lessons that can be learnt from foreign countries in Disaster Management:

- In the 2011 tsunami-earthquake, Japan allocated \$167 billion for rehabilitation and recovery. It made a five-year plan to do so comprehensively.
- Similarly, the US Congress allocated \$121.7 billion in hurricane relief in 2005 and 2008. Earthquake-prone Iran allocated 2% its national annual budget towards disaster risk reduction, including \$4 billion in 2012.
- Though precise figures for allocation "per head of vulnerable group" are not available, it is clear that comparisons with India on per-affected-population basis yield a dismal picture.
- Japan's targeted five-year plan focused on each stakeholder — from fisheries to housing and power. Knee-jerk reactions in grand mega-announcements after cyclones, without specific sub-allocations, lose their limited vigour and vitality by the time they reach the ground target.
- After 2011, the Japanese government enacted the "Act on the Development of Tsunami-resilient Communities", to efficiently combine structural and non-structural measures to minimise damage.

Conclusion:

We need five "Ps" to cope up with recurring disasters — prominence, as in the role of governments; a pool of funds; planning, especially long-term, of rehabilitation and development; policy qua institutional support; and preparedness qua countermeasures.

Challenges to internal security through communication networks, role of media and social networking sites in internal security challenges, basics of cyber security; money-laundering and its prevention.

The infodemic on social media around Covid crisis calls for a multi-pronged approach. Elaborate.(250 words)

Reference: [Indian Express](#)

Why this question:

The question is amidst the ongoing crisis which is witnessing infodemic on social media around Covid crisis and in what way it calls for a multi-pronged approach.

Key demand of the question:

Explain the issues around Infodemic marring the social media.

Directive:

Elaborate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Present briefly the current situation.

Body:



To start with explain the fact that with the COVID crisis pandemic there is an accompanied infodemic that needs urgent attention. With various sources (both institutional and individual) attempting to fill the information gaps, we often attend to contradictory information circulating on various social media platforms. Explain the factors responsible for such an infodemic. Suggest solutions to address it.

Conclusion:

Conclude with way ahead.

Introduction:

Infodemic refers to an excessive amount of information concerning a problem such that the solution is made more difficult. Some experts believe that an infodemic, or an excessive amount of both correct and incorrect information, is spreading around the world. The worst-case scenario is that inaccurate information is potentially spreading faster than the virus itself, causing people to make poorly informed decisions. The WHO has declared misinformation and fear as some of the biggest challenges they face with the new coronavirus.

Body:

Challenges posed by Infodemic:

- WHO is leading the effort to slow the spread of the 2019 coronavirus disease (COVID-19) outbreak.
- But a global epidemic of misinformation—spreading rapidly through social media platforms and other outlets—poses a serious problem for public health.
- every outbreak will be accompanied by a kind of tsunami of information, but also within this information you always have misinformation, rumours etc,
- But the difference now with social media is that this phenomenon is amplified, it goes faster and further, like the viruses that travel with people and go faster and further.
- In a country such as India, where 400 million turn to a single messaging app for sharing news and stories about any and everything, more than 240 million are on Facebook and, often, using it as the predominant source of news, a critical mass of misinformation leads to misdirected behaviours.
- In times of crises, cybersecurity is critically important, he stressed, adding that a huge number of people under lockdown or movement restrictions are now working and studying remotely, making them susceptible to cybercrime.
- Some instances are hard to ignore some dominant narratives: Bioweapons origins of the coronavirus (false); Bill Gates was behind it (false); UNICEF's recommendations for warding off infection (unauthorised).

Measures taken up:

- Immediately after COVID-19 was declared a Public Health Emergency of International Concern, WHO's risk communication team launched a new information platform called **WHO Information Network for Epidemics (EPI-WIN)**, with the aim of using a series of amplifiers to share tailored information with specific target groups.
- WHO is also working closely with UNICEF and other international agencies that have extensive experience in risk communications, such as the International Federation of Red Cross and Red Crescent Societies.
- Social-media companies must sort, rank, and prioritize true and reliable information now more than ever.



- Web companies such as Pinterest have already introduced headers and links on their homepages with information about Covid-19, for example.

Way forward:

- Maintaining a system of fact-checking and tough standards regarding COVID-19 and weeding out messages, hashtags and transmitters that fail to meet them.
- The traditional media has a key role in providing evidence-based information to the general public, which will then hopefully be picked up on social media.
- For both social and conventional media, it is important that the public health community help the media to “better understand what they should be looking for, because the media sometimes gets ahead of the evidence”.
- We, as users, have a responsibility to find better ways to seek advice or substitutes for that dopamine rush of sharing a message instantly liked, commented on and shared by others.
- As a society, much like our global response to the coronavirus, we cannot rely on bottom-up decisions.
- We need decisive leadership from the top. In the digital nations we inhabit, Facebook, Facebook-owned WhatsApp, YouTube, Twitter, TikTok, it is imperative that the leaders of these nations act – and act now.
- It is about time, Mark Zuckerberg (Facebook/WhatsApp), Sundar Pichai (Google/YouTube), Jack Dorsey (Twitter) and Zhang Yiming (TikTok) made some tough calls, much like what their own political leaders have done.
- It would be more useful if instead of a coy “Forwarded” note, WhatsApp had a note that said, “For Reliable Medical Advice, Check Out the WHO” or some other trustworthy medical authority

Conclusion:

It is time to step up and help us all practise social media distancing by enforcing stricter standards. Beyond India, the entire developing world relies on your platforms for news about the pandemic. If there ever was a time to demonstrate vision and leadership, this is the time for the digital leaders to flatten the curve of the infodemic before it flattens the most vulnerable populations on the planet.

A comprehensive cybersecurity strategy is needed to foster and sustain trust in the digital ecosystem. Elaborate.(250 words)

Reference: [Financial Express](https://www.financialexpress.com/news/india/india-digital-ecosystem-trust-cybersecurity-strategy-2020-04-28/)

Why this question:

The article explains how a comprehensive cybersecurity strategy is needed to foster and sustain trust in the digital ecosystem.

Key demand of the question:

Explain the need for a comprehensive cybersecurity strategy to foster and sustain trust in the digital ecosystem of the country.

Directive:

Elaborate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

One can start by explaining the importance of security of cyberspace for India.

Body:

To start with explain the fact that the security of cyberspace is important not only because of the actions of individual participants but because the infrastructure of cyberspace is now fundamental to



the functioning of national and international security systems, trade networks, emergency services, basic communications, etc. Then move on to explain the need for a comprehensive cybersecurity strategy. List down points in favour. Bring out challenges if any.

Conclusion:

Conclude with its importance for India in multiple dimensions.

Introduction:

With the vision of a trillion-dollar digital component, accounting for one-fifth of the \$5-trillion national economy, the importance of cyberspace in India would only keep growing as Indians have taken to mobile broadband like fish to water, driven by affordable tariffs, low-cost smartphones and a spurt in availability of audio-visual content in Indian languages.

Cyber security is a broad spectrum phrase and relates to preventing any form of unauthorized and malafide access to a personal computer, a laptop, a smartphone or a major network like the national banking system or the railway network or a national information technology asset that also has military implications.

Body:

Need for strong cybersecurity strategy:

- More than 4,000 fraudulent portals emerged within two months, and on a typical day in April 2020, Google alone blocked 240 million spam messages and 18 million phishing scams.
- Cybersecurity incidents observed by the Indian Computer Emergency Response Team (CERT-In) went up almost four times from 2017 to 2018, while cybercrimes went up by 77% from 2016 to 2017. Unsurprisingly, India's global rank on the cybersecurity index slipped to 47 in 2018 from 23 in 2017, according to the UN agency ITU (International Telecommunication Union).
- A 2017 study conducted by Symantec found that India ranked fourth in online security breaches, accounting for over 5 per cent of global threat detections. In the beginning of 2017, the newly launched Bharat Interface for Money application (BHIM app) reportedly faced spam threats.
- The real danger to India lies in targeted cyber-attacks coming from adversarial nation states.
 - Countries like China can bring immense assets to bear in carrying out sophisticated cyber-attacks. The success of Stuxnet, which damaged the Iranian centrifuge facility at Natanz is an example.
- There is a push towards greater digital dependence with demonetization a cashless system is being propagated. Aadhaar and the wider platforms such Digital India and Smart Cities will push things further along. India is the world's second largest digital nation with more than 350 million Indians are online and millions more will be getting connected in the years to come.
- Criminals can defraud unsuspecting users in sharing their bank or credit card account details with the PIN and passwords, intimidate and bully others, indulge in cyberstalking or, for that matter, could be involved in cyberespionage, terror financing or child pornography.
- Operations of critical infrastructure such as power grid or ports can come to a halt with ransomware, and fake news can flare up social tensions.
- India is not even a signatory to some of the basic international frameworks on Cybersecurity like the Convention of Cybercrime of the Council of Europe which not only European nations but Japan, US, South Africa have become signatories to, except India.



- Indian laws are not in tandem with the ever-changing global cyberspace.
 - The laws are old and hence need to be more dynamic in nature to deal with issues like cyber-espionage, data theft and so on.
 - The Information Technology Act, 2000 (IT Act 2000) is the sole law that deals with cyberspace in India and was passed way back in 2000.
- Also, the Cyber Law of India has been subject to amendments on various occasions but hasn't served the changing dynamics and the growing threats and manifestations of cyberwar.

Strategy should include the following:

- Since a global consensus is unlikely any day soon, India should consider joining or leveraging existing frameworks like the Convention on Cybercrime and the Paris Call. After all, cybersecurity has become a geopolitical issue, as reiterated time and again by the Prime Minister.
- **Security by design, budgeting by default:**
 - It is high time that 10% of every IT budget in the government be earmarked for cybersecurity, as recommended by the NASSCOM Cyber Security Task Force, just like 1-3% of every ministry's budget was set aside for IT in 1998, as recommended by the Prime Minister's IT Task Force in 1998.
 - The National Cyber Security Strategy (NCSS) 2020 and the data protection framework must be consistent with each other.
 - Exceptions and exemptions must be narrowly crafted, in compliance with the principles of lawfulness, fairness, transparency and proportionality laid down by the Supreme Court in its 2017 privacy judgment.
- **Prevention is better than cure:**
 - Nine out of 10 data breaches can be mitigated if we all take care of basic cybersecurity like using licensed and updated software, using different and difficult passwords for different services and devices, multi-factor authentication and strong encryption.
 - We need innovative solutions to scale up awareness as our user base is expected to reach a billion over the next five years, compared to half a billion currently.
- **Bidirectional partnership:**
 - The government should share its own assessment back with the private sector to create incentive for the latter to proactively share their intelligence on threat vectors without jeopardizing contractual obligations or intellectual property.
- **Pragmatic, predictable, flexible**
 - Underlying principles must go along with the strategic objectives and provide sufficient guidance and flexibility to sector regulators within their respective ecosystem.
 - For example, the cybersecurity guidelines or frameworks issued by RBI, SEBI, IRDAI and PFRDAI can be greatly synergized under the aegis of the Financial Stability and Development Council (FSDC), thereby bringing greater sanity for the regulators as well as the regulated entities.
 - In addition, every regulation must emerge through public consultation and be backed up with a regulatory impact assessment, whether it is about cross-border data flows or restricting encryption.

Measures needed:



- **A Defence Cyber Agency** could be the first step the government plans to for critical infrastructure and military networks that are increasingly becoming dependent on the Internet, thus increasing vulnerabilities.
- The Defence Cyber Agency will work in coordination with the National Cyber Security Advisor. It will have more than 1,000 experts who will be distributed into a number of formations of the Army, Navy and IAF. According to reports, the new Defence Cyber Agency will have both offensive and defensive capacity.
- Equally important is **cyber propaganda**. During the Doklam conflict, China tried its best to unleash cyber propaganda on India and indulged in complex psy-ops
- **Critical cyber infrastructure** needs to be defended and the establishment of the **National Critical Information Infrastructure Protection Centre (NCIIPC)** is a good step in this direction
- Individual ministries and private companies must also put procedures in place to honestly report breaches. It is only then that the NCIIPC can provide the requisite tools to secure these networks. This partnership must be transparent and not mired in the usual secrecy of intelligence organizations.
- The **upgrading of the Defence Cyber Agency to a Cyber Command** must be implemented at the soonest.
- A robust ecosystem must be built to secure India from acts of state and non-state actors, including protocol for grievance redressal in international forums.
- Better capabilities must be built to detect and deflect attacks.
- The **computer emergency response team (CERT)** must be strengthened and aligned with military and foreign affairs operations.
- Building a joint task force between the government and key technology players will be crucial.
- The government should push for the creation of a **global charter of digital human rights**.
- **A national gold standard** should be created, which ensures that Indian hardware and software companies adhere to the highest safety protocols
- Impart cybercrime investigation training and technological know-how to the various law enforcement agencies.
- **Cyber awareness** must be spread and there should be multi-stakeholder approach- technological inputs, legal inputs, strengthening law enforcements, systems and then dealing with transborder crime involves lot of international cooperation.

Conclusion:

Most of the Indian banking industry and financial institutions have embraced IT to its full optimization. Reports suggest that cyber-attacks are understandably directed toward economic and financial institutions. With innovative, technology led programmes such as AADHAAR, MyGov, GeM, Digital Locker the new India is the land of technological prowess and transformation. Government and the private sector jointly have to give cyber security some priority in their security and risk management plan.

Discuss the initiatives and measures that social media platforms and companies must make to self-regulate themselves so as to ensure information hygiene.(250 words)

Reference: [The Hindu](#)

Why this question:

The article talks about the importance of maintaining information hygiene by the social media platforms and importance of self-regulation in doing so.

Key demand of the question:



Explain in detail the initiatives and measures that social media platforms and companies must make to self-regulate themselves so as to ensure information hygiene.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Briefly explain the current conditions and issues with respect to social media platforms and companies like facebook, Instagram etc.

Body:

One can start by explaining what you understand by information hygiene. Present the issues or problems posed by social media platforms such as filter bubbles, echo chambers, information silos, viral virus, misogynist trolling and amplification of toxic content etc. Narrate any recent incidents that explain the context of the question better. Discuss what practices of self-regulation the media platforms and companies must take.

Conclusion:

Take hints from the article and conclude with what needs to be done to overcome such issues.

Introduction

The term “social media” refers to internet-based applications that enable people to communicate and share resources and information. While they have enabled faster communication, there are many challenges, of which information hygiene is the most important.

We live in an age of **infodemic**, where there is a lot of data to consume; but at the same time the veracity of claims made by the information is not factually true. This leads to fake news and mass hysteria.

Body

Challenges faced due to social media and it's content

There are more than **500 million internet users** in India and today social media is not only a subset of internet rather the internet itself.

- **Weakens the democracy:** Fake news poses a serious challenge to this proposition as it misleads the consumers of information, poses a threat to a democratic society as it can give a handle to the state to interfere with the functioning of media.
 - For instance, Facebook took a hammering over **Russia's interference in the 2016 U.S. election.**
 - It conceded the following year that up to 10 million Americans had seen advertisements purchased by a Russian agency.
- **Affecting choices and behaviours:** These platforms are predominant source of news and a critical mass of misinformation leads to mis-directed behaviours filled with fake news and disinformation aimed at influencing choices ranging from day to day life to political choices made during the Indian elections.
- **Threat of infodemic:** The WHO warns that societies around the world are facing an “infodemic” —an “overabundance” of information that makes it difficult for people to identify truthful and trustworthy sources from false or misleading ones.



- **Accountability issues:** Challenges with respect to fixing the liability of intermediaries. It is also difficult to trace the origin of fake news circulation.
- **Jurisdictional challenges:** Complications in jurisdiction as Facebook, twitter etc. operate as subsidiaries of foreign internet companies with their servers located outside India.
- **Anonymity:** Police officers have expressed concern over multiplicity of fake profiles. There is no accountability of a crime.
- **Encrypted Message:** Use of **WhatsApp** to send and receive messages, concerns the government because the communications sent via such devices and applications are encrypted.
- **Spread hatred and mistrust:** False information propagated through fake news have helped people developing racist and **xenophobic sentiments** against people of Asian origin around the world, as we saw in the case of Corona epidemic. Such messages can often be a means of reinforcing existing prejudices.

Measures being taken for regulation and information hygiene

- The social media conglomerate has also launched a **content oversight board**, which will be able to overturn decisions by the company and Chief Executive Mark Zuckerberg on whether individual pieces of content should be allowed on Facebook and Instagram.
- Google has launched its Google News Initiative to help journalism thrive in the digital age.
- The world's biggest social media companies, including Facebook, Google, Twitter and ByteDance, are exploring an **industry-wide alliance** to curb fake news on their platforms in India.
 - The proposed alliance — to be named the **Information Trust Alliance (ITA)** — will be a grouping of digital platforms and publishers, fact checkers, civil society and academia that will aim to control the spread of harmful content, including fake news and hate speech.
 - **Facebook** has announced that it currently has over 500 full-time employees and at least 3,500 external contractors who focus on election work, on top of the 30,000 people across the company focused on safety and security issues.
- Coordinated attempts to amplify and spread misleading and false information sometimes seem to emanate from major political parties and activists who support them. **Election Commission of India** must tie up with tech companies to identify the creator of such news.
- **Educating the end-users** to be more discerning consumers of news by informing them of verification tools so that they can ascertain the accuracy of a news item before sharing it.
- **Press Council of India**, a regulatory body, can warn, admonish or censure the newspaper, the news agency, the editor or the journalist or disapprove the conduct of the editor or the journalist if it finds that a newspaper or a news agency has violated journalistic ethics.
- A better and more effective approach to limit the influence of hoaxes on WhatsApp and other platforms is to increase **media literacy**.
- The government should bring out a policy framework on the possible harm due to the internet messaging platforms to engage at a deeper level.
- Government of India could partner with local news groups to further educate citizens on how to identify real news from fake news.



- Imposing hefty fines, like in Germany the Social media companies face fines of up to €50m if they persistently fail to remove illegal content from their sites.

Way-Forward

- **Promoting the culture of authenticity:** The people who consume the data on an everyday basis educate themselves and acquire the skills to tackle it.
 - There is a need to shift towards a system where self- verification of information is an 'internet skill' and an important duty.
 - This can be done simply by a quick search on Google, or checking for that information or visiting the official websites to verify the accuracy of the data.
- **Responsible citizenry:** Consumers who play the central role in the spread of misinformation, are also the most efficient and effective in debunking the various myths and fake news. This skill can be taught via:
 - Creating awareness on television and social media, or
 - Innovative initiatives like 'Fake News Classes' introduced in government schools in Kerala, where they teach students how to identify and spot misinformation.
 - By asking questions like "What is the source of that (post/forward)?" before sending it to other people.
- **Proactive web monitoring:** The Mumbai Police has launched a project called "Social Media Lab" to check explosive content on various platforms and quell fake news.
 - Initiatives such as 'WhatsApp's Checkpoint Tipline', 'The Logical Indian' should create user awareness regarding fake news.
- **Crisis Protocols:** Creating a crisis protocol for responding to emerging or active events, on an urgent basis, so relevant information can be quickly and efficiently shared, processed, and acted upon by all stakeholders with minimal delay.
- **Global cooperation: Christchurch Call of Action** outlined voluntary commitments from governments, ISP's to address issue of violent extremist content online. India is a signatory to this plan